Public Utilities

Volume 57 No. 11 May 24, 1956

PUBLIC UTILITIES REPORTS, INC.

an important new "PLUS FACTOR" of the Motorola Twin-V Radiopho

MOBILE

TRANSISTORIZED DYNAMIC MICROPHONE

Unprecedented voice clarity for mobile radio transmission

- true moving coil dynamic characteristics
- transistor preamplifier built-in
- printed circuit
- all-metal housing
- retains popular size and shape
- superior voice reproduction
- unexcelled reliability.

Twin-V

The new transistorized dynamic microphone, or the dual purpose dynamic "Speaker-Mike," is *optionally* available with Motorola's "TWIN-V" Radiophone—the world's finest FM 2-way mobile radio unit . . . incorporating many *exclusive* features, including universal 6/12 volt operation, Sensicon receiver, Permakay Filter, and Instantaneous Deviation Control.

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Also available as *"SPEAKER-MIKE"*

The new microphone can be furnished as a dual-purpose "Speaker-Mike" which functions as a full output communications-type *loudspeaker*, as well as a dynamic microphone. It can be conveniently mounted, or held near the operator's ear to overcome high ambient noise levels.

You can have either of these outstanding microphones as replacement items, or as *optional* equipment with new Motorola "TWIN-V" Radiophones. The transistorized, dynamic microphone, with its *popular palm size*, is directly interchangeable with Motorola carbon models now in use. The "Speaker-Mike" version requires a simple modification kit for replacement use in existing equipment.

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FORTNIGHTLY

VOLUME 57 MAY 24, 1956 NUMBER 11

ARTICLES

FEATURE SECTIONS

PUBLIC UTILITIES REPORTS, INC., PUBLISHERS

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the Miracle on

On the banks of the Ohio, right now, these two huge electric plants are turning out power at the rate of over 18-billion kilowatt-hours annually. They are, respectively, the first and second largest investor-owned power plants in the world.

They stand on what was farmland less than three and one-half years ago.

Their completion, substantially ahead of schedule, is the result of the outstanding teamwork of management, investors, engineers, technicians and workers in privately-owned utilities and their suppliers.

The vast power output of these plants, *almost half as much electricity as all France produces*, is ready to assure uninterrupted operation of the Atomic Energy Commission's uranium diffusion center near Portsmouth, Ohio.

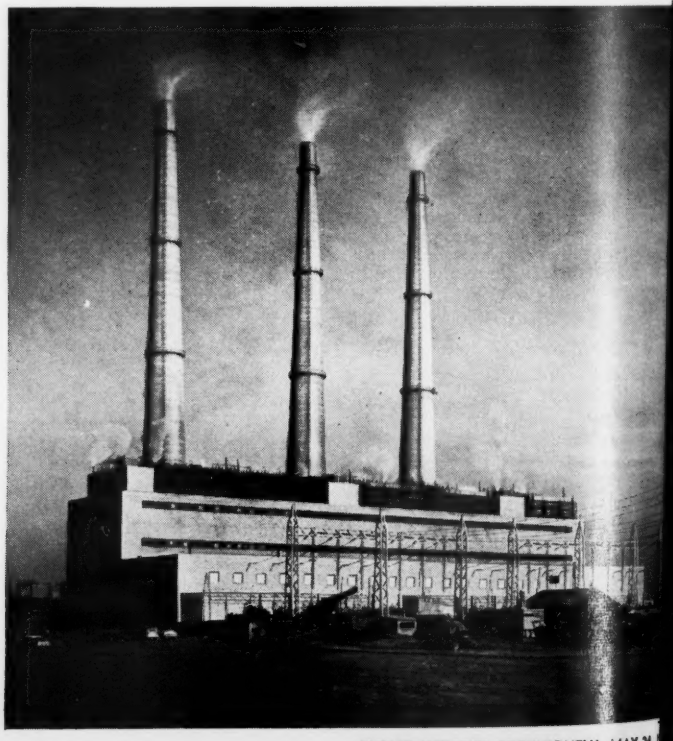
When the AEC made its enormous needs known, 5 private electric companies* joined forces to form the Ohio Valley Electric Corporation and its subsidiary, Indiana-Kentucky Electric Corporation. Pooling their resources in men, money and experience, they and their suppliers worked faster than the construction timetable. In quick order the 11 gigantic B&W boilers, the turbines, generators, buildings—and all the vast complex of auxiliary equipment—were designed, built and placed into operation.

The first generating units were placed in commercial operation in February 1955. The final unit went on the line in February 1956 at Clifty Creek, marking the largest installation of power in a single project ever made in a twelve-month period.

All Americans can be proud of OVEC-IKEC for this great accomplishment. What appears to be a miracle, in reality is, a clear demonstration of what private enterprise and enlightened government, working together, can accomplish for the benefit of the entire nation.

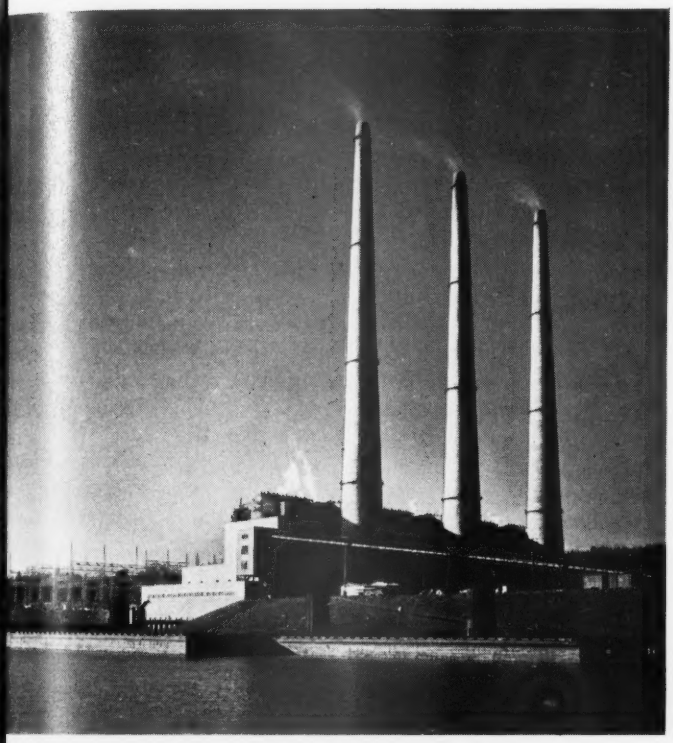
The future will undoubtedly pose many similar challenges. Can they be met? Are enough young engineers, business men, technicians, and skilled workers being developed to accept these great responsibilities? Babcock & Wilcox, like so many other American firms, is pledging its resources to guarantee that the answer will be "Yes!" Recruiting and training young men, expanding and modernizing production facilities, conducting extensive research and engineering development projects—all are part of a long range B&W program to contribute its share to the technical and economic progress so necessary for the continued growth of the nation.

The Babcock & Wilcox Company, 161 East 42nd Street, New York 17, N. Y.

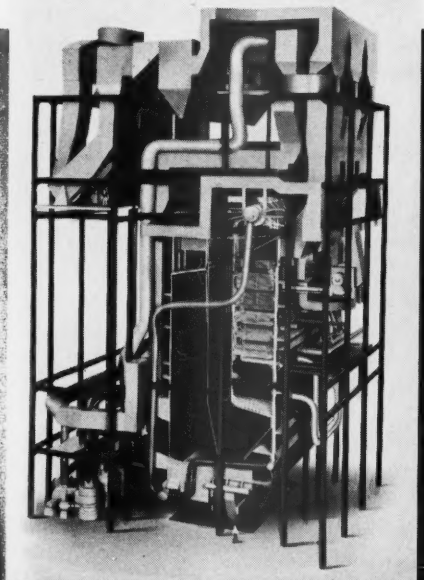


KYGER CREEK PLANT, at Cheshire, Ohio, with a capacity of 1,075,000 kilowatts, is the world's second largest investor-owned power plant.

the Ohio River



CLIFTY CREEK PLANT, at Madison, Indiana, with a capacity of 1,290,000 kilowatts, is the world's largest investor-owned power plant.



11 B&W Open-Pass Boilers generate steam for the two plants. Each boiler produces 1,330,000 lb of steam per hr at 2000 psi and 1050 F, with reheat to 1050 F. The utilization of high temperatures, high pressures and reheat at both plants places them among the most efficient and economical in operation.

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G 749

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BOILER DIVISION

Pages with the Editors

In this issue we present two independent but somewhat parallel discussions of that hardy perennial problem of public utility regulation—the fair rate of return. Although these articles unavoidably go into detailed analyses of court decisions, we happened to note that both of the respective authors have backgrounds in professions other than the law. One is an engineer. The other is an accountant.

To veteran students of regulation, this is not a surprising circumstance. It has long been noted that regulatory law—or, to use the broader classification, administrative law—is essentially a fusion of the talents of various learned professions and business specialties.

Not long ago, we had occasion to observe a slight trend away from the legal profession (which still predominates, however) in the appointment of federal and state regulatory commissions. It is interesting to speculate whether future developments in the field of public utility regulation and other branches of administrative law will not draw somewhat more freely from the nonlegal professions and other callings.

Admittedly, the responsibilities of the regulatory commissions are becoming more complex with each passing year. Viewed from any angle—finance, technical operation, legal, accounting, and business administration—utility regulation becomes more important and, by the same token, more difficult and more demanding.

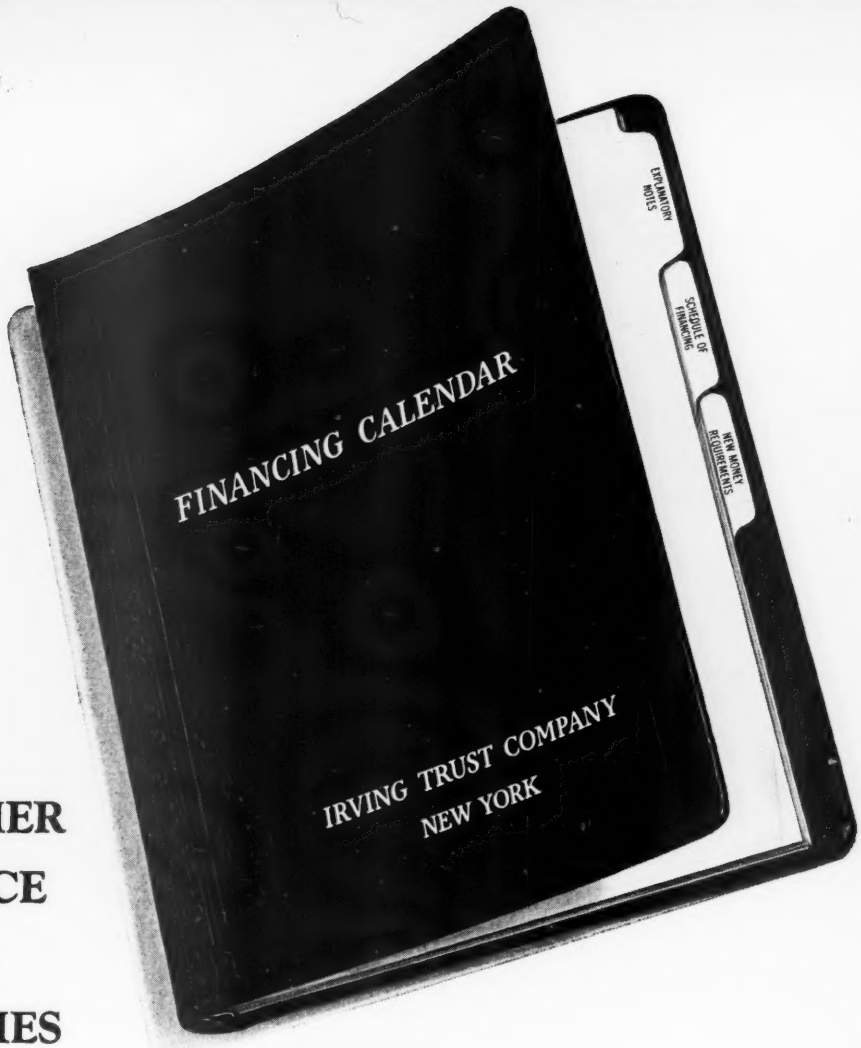
WILLIAM H. HOWE

It is safe to say that the total investment in utility plant alone, including all the accepted forms of utility industry, has doubled since the beginning of World War II. Indeed, if the common carrier industries are included, public utility plant today represents an investment in the order of $100 billion.

But this is only one gauge of the increasing responsibilities of regulation. New engineering techniques, new scientific discoveries, new demands of all kinds for various utility services have focused upon public utility management a greater challenge of individual initiative and ability. And it necessarily follows that if public utility regulation is to keep pace, in its rôle of supervisor under the law, the regulators must likewise meet new demands on their individual talents.

It may well be that public utility operation and regulation are entering an era of professional specialty in its own right—a specialty calling upon the knowledge and skills of many older professions—law, engineering, business administration, accounting, economics, finance, education, public relations, to name a few of the various fields at random. How else could an entire major industry be born and expand to virtual maturity within the span of a couple of decades? Yet, that is virtually what has happened in the natural gas pipeline industry. And that is what may happen again in the field of atomic electric energy in the not too distant future.

In short, public utility business and public utility regulation, hand in hand, would seem to be very much of a "career calling"



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CHARLES W. KNAPP

in the years ahead. It would be a calling steeped in a tradition of public service—almost a trusteeship of the public interest with grave responsibilities for public health, welfare, safety, progress, and economic expansion.

COMING back to the material in this issue of the FORTNIGHTLY, the opening article deals with the rate base as a test of fair rate provisions. A percentage figure applied to the number of dollars found to represent the rate base of a public utility produces the number of dollars to be allowed for return. Comparisons of such percentage figures, however, may be misleading if the method of rate base determination is overlooked. The net income to the public utility company must meet the standards established by courts and commissions involving such factors as attraction of capital, cost of money, risk, and comparable returns.

WILLIAM H. HOWE, author of this first article, is at present the chief engineer of the Arizona Corporation Commission. He is a graduate of Stanford University, with a Bachelor's degree in civil engineering ('22). He began his career with the Salt River Valley Water Users' Association, originally a Bureau of Reclamation project. In 1933 he entered the utility business as commercial manager of the Tucson Gas, Electric Light & Power Company. In 1942 he became vice president and general manager of the Deming Ice & Electric Company at Deming, New Mexico. In 1946 he became director and division manager of the Public Service Company of New Mexico. He joined the Arizona commission in 1951.

* * * *

IN his article on the fair rate of return, beginning on page 739, CHARLES W. KNAPP has reviewed leading court decisions, as well as recent publications, on the subject of the return allowance, and gives his own conclusions about standards to be applied. MR. KNAPP is now engaged in consultant accounting practice in West Hartford, Connecticut, and until recently had been a partner in the Hartford accounting firm of Frazer and Torbet. His previous connections included service with the Arthur Andersen & Co. staff in the early thirties, a tour of staff duty with the Federal Communications Commission during the investigation of the Bell Telephone system in 1935, and some staff service with the Federal Power Commission. In recent years MR. KNAPP has been employed as consultant to various municipalities and municipal leagues in public utility rate cases.

* * * *

IN the first instalment of his 2-part series, ROBB M. WINSBOROUGH, consultant of the Middle West Service Company, outlined the need for public utility management to keep a constant check on the reservoir of good will which the utility company should enjoy in the community or area where it serves. This check-up of what is more commonly known as "public relations" necessarily develops into a form of technique.

IN the second instalment, beginning on page 732 of this issue, MR. WINSBOROUGH analyzes the major influences which affect the condition of a public utility company's public relations. There is, for example, the impact of a company's conduct and practices, as well as the impact of developments beyond company control.

THE next number of this magazine will be out June 7th.

The Editors

IF DISASTER STRIKES!

What about your vital records?

Vital public utility records reduced to microfilm can be safely stored out of the way of disaster. If disaster strikes, your records can quickly assess the extent of the damage and evaluate the best means for reconstruction.

Now, Remington Rand offers the revolutionary new Model 8 Film-a-record Camera with optional PB Feeder attachment. This precision unit combines big machine performance with transportability and economy. The PB automatic feeder is the most accurate, high speed feeding device available. It attaches easily and quickly to the Model 8 Camera.

Model 8 is simple to operate . . . offers all the most modern microfilming advances: 12" throat, 25-1 or 40-1 reduction, 16mm. film or by filming down both sides, 8mm. Full operating features include warning signals, visible film supply indicator, counter and Color-Stat.

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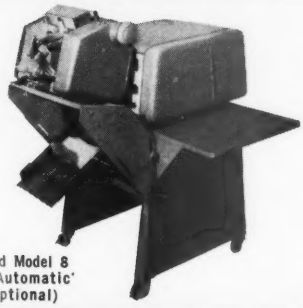

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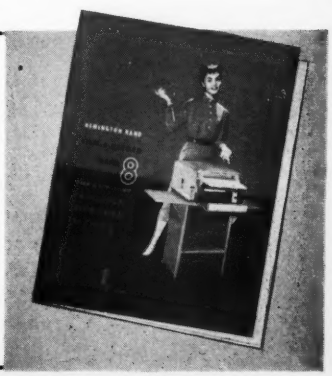


Coming IN THE NEXT ISSUE

(June 7, 1956, issue)

★

FAIR PLAY AND THE POCKETBOOK

Nobody can say that the electric utilities in the United States have failed to meet their responsibilities to the public. The industry has met skyrocketing increases and demands for service at constantly lowering cost during periods when the prices of other materials and services have steadily advanced. Yet, paradoxically, it is an industry singled out for discrimination and criticism by those whose real purpose is to destroy this enterprise and substitute the burden of socialized services of government agencies. Harllee Branch, Jr., president of the Edison Electric Institute, and president of the Georgia Power Company, makes a forthright plea for fair treatment of the electric utility industry—much needed and long overdue.

THE CHALLENGE OF THE LEGAL PROFESSION

We hear much current discussion of freedom and threats to freedom in certain fields. But the gravest menace to freedom may lie in quarters which are not stressed or widely dicussed—the freedom of private enterprise, of local initiative, of education. The dangerous drift to centralized government control by unlimited federal powers of taxing and spending could undermine the very basis of all of our free institutions. This is a timely statement on this subject by a most distinguished lawyer, E. Smythe Gambrell, of Atlanta, Georgia, president of the American Bar Association and former chairman of the Section of Public Utility Law of the American Bar Association. It is a warning against the unseen erosion of safeguards for our most treasured liberties.

OPERATION ALERT—1956—FOR ELECTRIC UTILITIES

Electric companies and other utilities are pledged to join with civil defense organizations in testing their emergency mobilization plans during a national alert scheduled for July 20-25, 1956. In some areas full-dress tests of electric power facilities under emergency conditions will be staged. The Honorable Fred G. Aandahl, Assistant Secretary of Interior, has written an account of how these plans are being encouraged by the Interior Department.

THE STATES DISCOVER THE ATOM: A NEW FRONTIER

Electric utility management has a special concern with the shaping of state activities in the atomic energy field with respect to both regulatory and technical developments. Dr. William A. W. Krebs, Jr., assistant professor of law of the School of Industrial Management, Massachusetts Institute of Technology, outlines the tremendous stakes and responsibilities inherent in this rapidly progressing field.

ALABAMA'S COOSA RIVER DEVELOPMENT—PAST AND PROPOSED

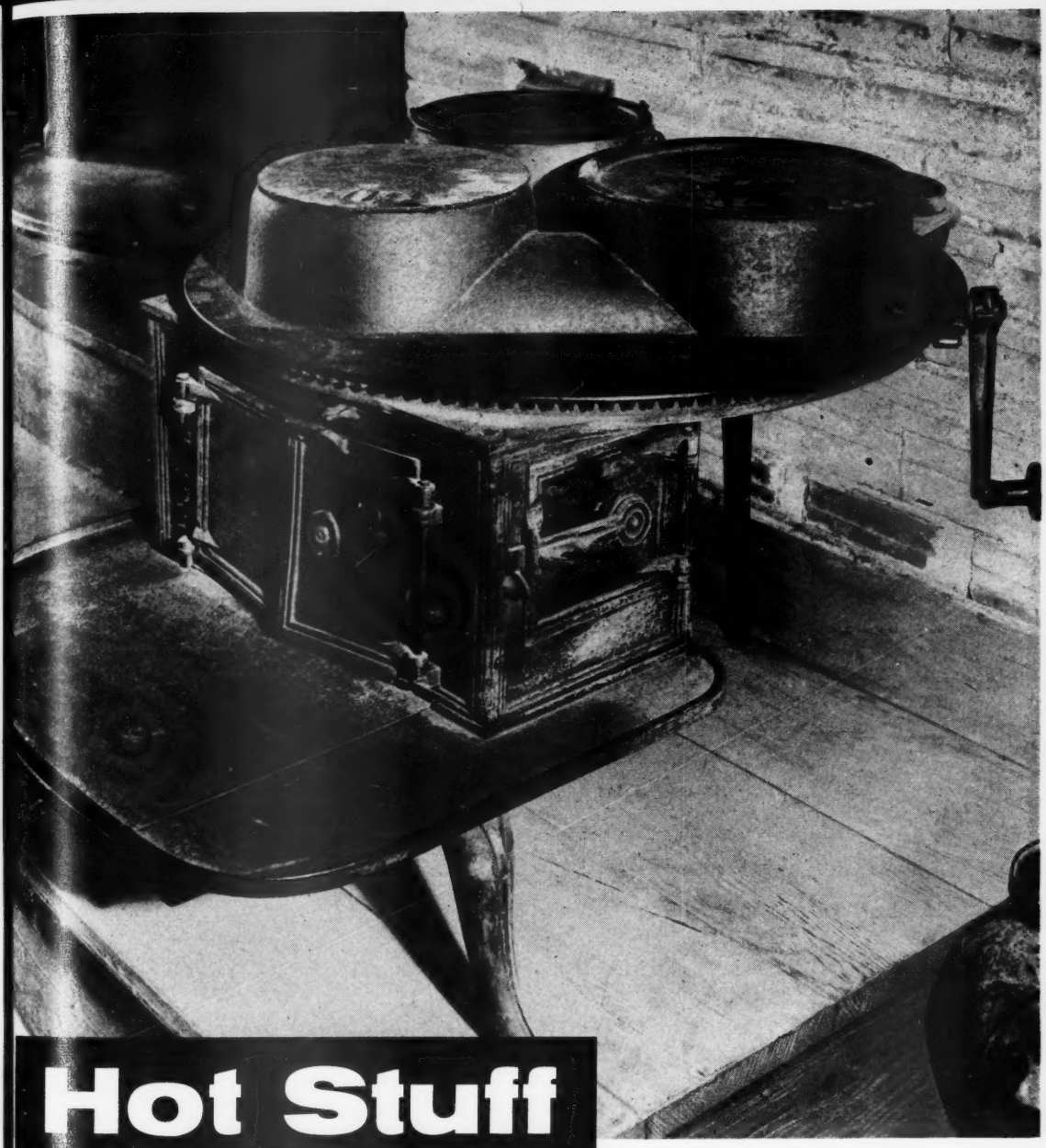
The quiet Coosa river of Alabama is the scene of one of the nation's most interesting hydroelectric developments now in the process of expansion, for it is here that the federal government has twice changed its policy as to whether there should be public or private company responsibility. Finally, in 1954, Congress specifically authorized the Alabama Power Company to go ahead, then the FPC approved. Thomas W. Martin, chairman of the board of the Alabama Power Company, tells us this story from the beginning to the present point of ultimate solution.

THE SALE OF OFF-PEAK POWER

Are electric utilities missing opportunities for profitable sale of a class of service which they already have available without the need for any substantial additional cost? Orrin S. Vogel, director of economic research, Florida Power Corporation, outlines a somewhat original approach to the promotion of a form of regulated business which many companies may now be overlooking.

★

Also . . . ***Special financial news, digests, and interpretations of court and commission decisions, general news happenings, reviews, Washington gossip, and other features of interest to public utility regulators, companies, executives, financial experts, employees, investors, and others.***



Hot Stuff

KEEPING things hot in "turn" was the idea behind this crude forerunner of the modern, automatic steam table. Figures that must wait their "turn" to be processed are seldom hot—and hot, fresh figures are all important to the operation of modern business. Rate analyses that are weeks and months old won't tell you much. Rate analyses turned out swiftly and accurately in a matter of days by the "One Step" Method tell you plenty—allow you to plan and *profit*. We would like to send you the story of the "One Step" Method (exclusive with R & S), it's succinctly told in BOOKLET "FBB", a copy is yours for the asking—no obligation, of course.

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Remarkable Remarks

"There never was in the world two opinions alike."
—MONTAIGNE

MEYER KESTNBAUM
Special assistant to President Eisenhower on intergovernmental relations.

"We have too many local governments and not enough local governing."

NORMAN R. SUTHERLAND
President and general manager, Pacific Gas and Electric Company.

"Actually, our government has nothing to give away to the people that it hasn't taken away from the people. And that includes public funds."

HARRY A. BULLIS
Chairman of the board, General Mills, Inc.

"The public is asking many questions about industry, questions that must be answered clearly and intelligently and in a manner to advance the general public's understanding of the basic economic principles of our competitive Capitalism. Every question that consumers and the men and the women who make up the public ask is based on that strongest of all motivations—'What's it to me?' "

Excerpt from Industrial News Review.

"A tax-free outfit like the government can run anybody out of business. Even with the more or less misunderstood kilowatt, you go to work and let the government—with no taxes to pay—make all the electricity of the land, somebody and everybody—dairyman to dentist to housewife—is going to be nicked for the tax loss. That is as sure as there are, here and there, small apples on any apple tree."

T. S. PETERSEN
President, Standard Oil Company of California.

"I see no reason why a Cabinet member or administrator should be required to divest himself of all or even a part of his stock holdings. If a man is worth having in government at all, he is worth having on his own merits. No man alters the complexion of his personal viewpoint and governmental philosophy merely by severing his ties with his former interests and associates. That goes for businessmen, labor leaders, attorneys, and everybody else."

Excerpt from First National City Bank (New York) Monthly Letter.

"The arugments favoring a boost in congressional pay apply with equal force in other occupations. Business and the professions feel the same shortages of men able and eager to take on top responsibilities. The lack is hardly one of native ability. The extremity to which the progressive income tax has been carried is the more likely culprit. This applies in Congress and elsewhere. The income tax puts a curse of social unconscionability on taxable incomes as low as $16,000 where a 50 per cent tax rate comes into action. Taxes got this way, of course, in the name of depression and war emergencies. Successful people made the disproportionate sacrifices demanded of them. To keep this kind of structure indefinitely is to embrace the socialistic principle that people should be discouraged from expecting material rewards for superior efforts and ability."

FOR SPEED!

FOR ACCURACY!

USE BELL SYSTEM PRIVATE LINE TELETYPEWRITER SERVICE

Bell System private line teletypewriter service offers important advantages to those who operate the nation's power lines.

Teletypewriters are used for planning the day's operations, general written communications from load dispatcher to power plants, substations, other dispatchers, and offices.

The service ranges from a simple private line between two teletypewriters up to networks connecting many points. To meet the challenge of today's highly competitive market, you have *direct—fast—accurate—written—private—two-way* record communications.

Let a Bell System communications engineer make a detailed study of your communications. Such a survey may save you time and money. There's no obligation.

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NEW-Dodge offers you a complete line of tandem-axle models

New Dodge bogie unit guarantees you maximum payload capacities!

Now you can get Dodge dependability and low operating costs in a complete line of rugged, all-new six-wheelers.

Capacity ratings range from 25,000 to 46,000 G. V. W., rear-axle capacities from 22,000 to 38,000 lbs.

High-power V-8 engines—from 201 to 220 hp.—give you more than enough power to haul the heaviest loads easily, speedily, safely.

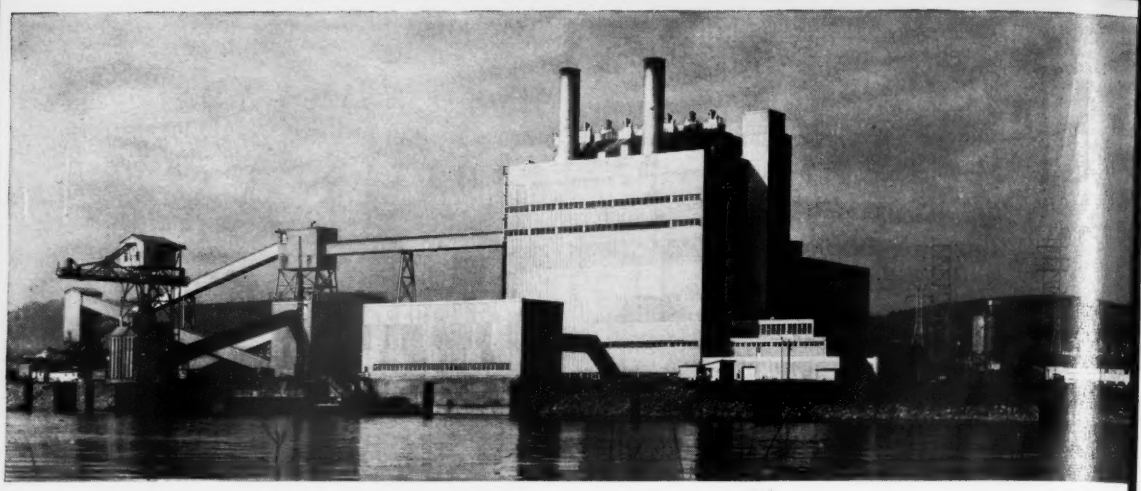
"Walking-beam" bogie keeps all eight rear tires in contact with ground at all times, minimizes bounce, increases tire mileage.

See these new V-8 Dodge tandems. Check them out against any other make and discover why they top the industry.

GET YOUR DODGE DEALER'S DEAL BEFORE YOU DECIDE

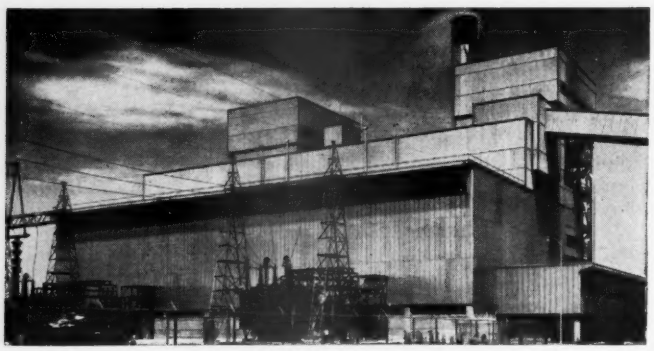
DODGE Job-Rated TRUCKS

WITH THE *FORWARD* LOOK

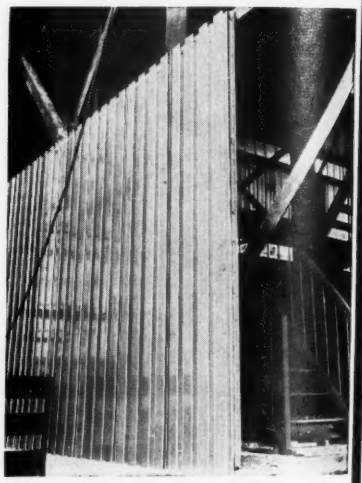


Why fine new power plants everywhere have Q-Panel Walls

Builders of new power plants in all parts of the country have specified Q-Panel walls for the following very good reasons: 1. Q-Panels are permanent, dry and noncombustible, yet may be demounted and re-erected elsewhere to keep pace with expansion programs. 2. Q-Panels are light in weight, thus reducing the cost of framing and foundations. 3. Q-Panels have high insulation value . . . superior to a 12″ masonry wall. 4. Q-Panels are quickly installed because they are hung, not piled up. An acre of wall has been hung in 3 days. For more good reasons for using Q-Panel construction, use the coupon below and write for literature.



Q-Panel walls grace the new Elrama Power Plant (above) near Pittsburgh. It was designed by Duquesne Light Company's Engineering and Construction Department. The Dravo Corporation was General Contractor.



Q-Panel walls (above) go up quickly in any weather because they are dry and hung in place, not piled up.

More than 32,000 sq. ft. of Q-Panels were used to enclose the impressive Hawthorn Steam Electric Station (left) of the Kansas City, Missouri, Power and Light Company. Ebasco Services, Inc., designed and built the plant.

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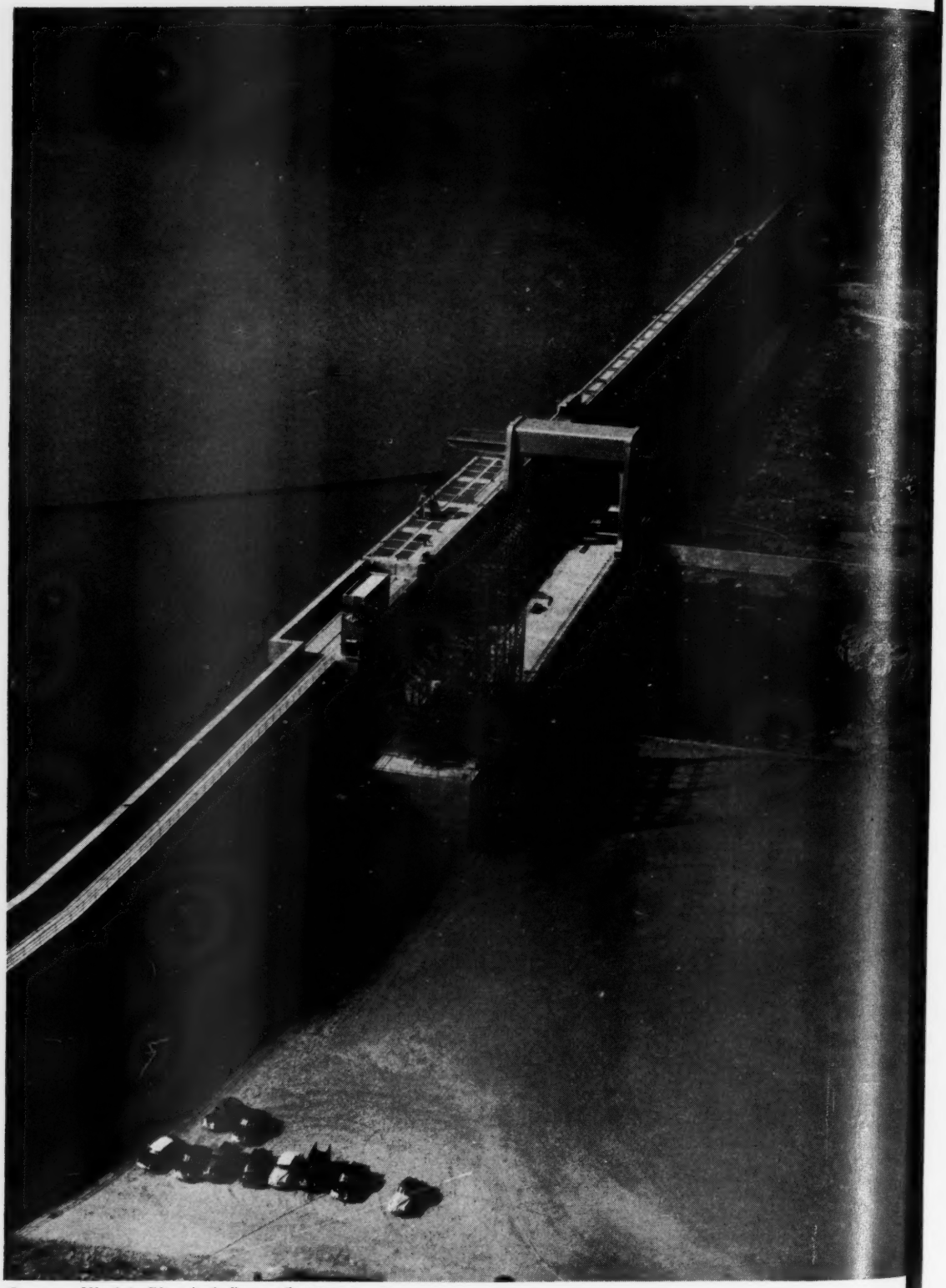
MAY-JUNE

Thursday—24 *Natural Gas and Petroleum Association of Canada begins meeting, Niagara Falls, Ontario, Canada.*	**Friday—25** *American Management Association ends 3-day general management conference, New York, N. Y.*	**Saturday—26** *National Society of Professional Engineers ends 4-day annual meeting, Atlantic City, N. J.*	**Sunday—27** *Appalachian Underground Corrosion Short Course will be held, West Virginia University, Morgantown, W. Va. June 11–13.* ***Advance notice.***
Monday—28 *New York State Telephone Association will hold annual convention, Schroon Lake, N. Y. June 11–13.* ***Advance notice.***	**Tuesday—29** *The Institution of Gas Engineers begins meeting, London, England.*	**Wednesday—30** *International Conference on Large Electric Systems (Cigre) begins biennial session, Paris, France.*	**Thursday—31** *Annual Short Course in Gas Technology begins, Texas College of Arts and Industries, Kingsville, Tex.*
JUNE **Friday—1** *National Association of Electrical Distributors will hold annual convention, Atlantic City, N. J. June 11–14.* ***Advance notice.***	**Saturday—2** *American Gas Association, Accounting Section, will hold meeting, Hot Springs, Va. June 14, 15.* ***Advance notice.***	**Sunday—3** *American Society of Mechanical Engineers will hold semiannual meeting, Cleveland, Ohio. June 17–21.* ***Advance notice.***	**Monday—4** *Edison Electric Institute begins annual convention, Atlantic City, N. J.*
Tuesday—5 *Kansas-Missouri Telephone associations end 2-day joint convention, Kansas City, Mo.*	**Wednesday—6** *California Independent Telephone Association begins annual convention, San Francisco, Cal.*	**Thursday—7** *National District Heating Association ends 4-day annual meeting, Williamsburg, Va.*	**Friday—8** *National Fire Protection Association ends 5-day annual meeting, Boston, Mass.*



Courtesy, Virginia Electric & Power Company

Business-managed Hydro on the Roanoke

Public Utilities
FORTNIGHTLY

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Rate Base as a Test of Fair Return Provisions

The U. S. Supreme Court has ruled that a statutory standard on a fair rate of return may govern only the result reached and not the method employed. This author views the perennial and persistent regulatory problem of relating the rate base to the fair rate of return.

BY WILLIAM H. HOWE*

IN prescribing a general schedule of rates for a public utility, is the construction of a rate base necessary, lawfully, to test the reasonableness of the return flowing from such rates? Herein lies a question which, at some time, has probably confronted every regulatory agency and the answer, perhaps, is as varied and shaded as the number of regulatory commissions throughout the land.

*Chief engineer, Arizona Corporation Commission. For additional personal note, see "Pages with the Editors."

As the question has been framed and propounded it is based upon the legal aspect of such necessity. In a discussion of this broad subject, we should consider, first, the legal requirements, which undoubtedly vary from state to state, followed by some of the practical aspects as well.

Some of our commissions derive their jurisdiction and authority from constitutional provisions while other regulatory agencies and commissions are vested with

authority by statutory enactments. It is evident, therefore, the jurisdictions, the powers of regulation, and the methods of prescribing utility rates will vary to the extent of the authority conferred, the source of that authority, and the methods by which such authority is utilized. Hence, from within the framework of our 48 states, it is reasonable to expect there may be variations.

SINCE there are wide variations among the states, beginning with the source and implementation of authority, and running the gamut of normal or formal procedure to the ultimate decision and interpretation of such authorizations or jurisdictions, it follows, therefore, we may anticipate a divergence of opinion concerning the legal necessity of constructing a rate base as the test of reasonableness of the return to be derived therefrom.

Even in those states which may consider it lawfully necessary to construct a rate base for the determination of the reasonableness of rates and charges, we find wide variations of opinion as to what reasonably constitutes the elements of a rate base. While the great majority of the states consider plant and property at original cost, there are some deviations from this concept reaching all the way to present-day reproduction cost less observed depreciation as has been used in a few states. Other variations show themselves by a year-end rate base in some states, while most of the states use an average for the year.

Other elements which may be considered for rate base purposes, such as plant acquisition adjustments, customer contributions and advances, construction in progress, materials and supplies, prepayments and working capital, are given varying treatment from state to state so that what is a rate base in one state may not be a rate base in another state. First of all, we are confronted with the question of what does constitute a rate base and what are we going to do with it after we have made our determinations.

THE basic philosophy and theory underlying the regulation of public utilities and their rates are that such rates and charges shall be just and reasonable; and when we use the term "just and reasonable" the fair and logical interpretation must follow that they be just and reasonable to the company and to its customers, as well.

Throughout the many years of regulation, and more particularly within recent years, we have become accustomed to thinking that the rate of return which a utility should be allowed is about 6 per cent on its rate base. The basis of such thought is, perhaps, to be found in a study of the "Statistics of Electric Utility Companies and Natural Gas Companies," issued annually by the Federal Power Commission, or from other sources such as Moody's "Utilities" and the reports of Standard & Poor. Nor should we lose sight of the continuing decisions and orders issued by the various state commissions.

But when we think of a national or industry-wide average return of 6 per cent, we should bear in mind that this rate of return is predicated upon a rate base of average net investment and not some theoretical, speculative, or hypothetical figure to represent present-day inflated costs of replacement. So we find that what may be a return of 6 per cent on a rate base

in one state may be the equivalent, dollarwise, of a much higher rate of return on average net investment.

FROM the tremendous volume of statistical data available from sources such as the Securities and Exchange Commission, the Federal Power Commission, the Federal Communications Commission, and financial analysts, it is readily possible, practical, and feasible to make detailed studies of entire utility industries such as the electric utilities, gas utilities, and the telephone utilities. In this connection, may I point out that all of the foregoing sources of data predicate their reports upon original cost figures; hence they are equated to a common denominator at the very outset. With original cost data as a starting point, the results of these studies may then be related to any other kind of a rate base in the determination, dollarwise, of an equivalent rate of return.

The return of a utility is the number of dollars it actually earns over and above all operating expenses. Many companies will tell you, either publicly or privately, their primary concern lies in the number of dollars which they will be permitted to earn.

Now, the allowable dollars a company may be permitted to earn, when predicated upon a rate base, are merely the product or multiplication of the rate base by its associated rate of return, either or both of which may be variables from state to state and it follows, therefore, the end result of return or allowable earnings may be variable.

UNLIKE many of the state regulatory agencies, the Arizona Corporation Commission was created by constitutional provision and its authorities and powers are set forth in Article 15 of the Arizona Constitution. This article provides that all utilities, other than municipal, shall be subject to regulation by the Arizona Corporation Commission and that rates and charges prescribed for such utilities shall be just and reasonable. The constitutional provision, also, requires the commission to ascertain the fair value of every utility within the state to aid and assist it in the proper discharge of its duties. No mention is made in the Arizona Constitution of what is fair value nor is there any reference or directive made that once having determined fair value that such value shall be a rate base. The language is clear that it is merely to aid and assist the commission in the discharge of its duties. There is no reference or implication within the Arizona Constitution of what shall be a fair rate of return, although a superior court decision in 1949 stated that a rate of return less than 5 per cent was confiscatory.

¶ *"ONE of the primary responsibilities and obligations devolving upon regulatory commissions is to provide a company with sufficient earnings to maintain its financial integrity and remain in a position to be able to attract new and additional capital for expansion. Particularly is this true in the Mountain-Pacific states where we have witnessed the tremendous expansion of utilities in this postwar era."*

In some of the rate cases before the Arizona Corporation Commission, particularly within recent years, the contention of some utilities has been that "fair value" means present-day reproduction cost less observed depreciation and this value should be the rate base. In the light of the clear and concise language of the Arizona Constitution that "rates and charges shall be just and reasonable," it would appear that the end result of just and reasonable rates is the basic consideration or governing factor. Incidentally, this same line of thought and reasoning seems to be amply supported by the Hope Natural Gas Company decision of the U. S. Supreme Court in 1944.

HAVING presented some of the legal aspects of rate base as the term applies in Arizona, we should also consider some of the practical phases of this subject.

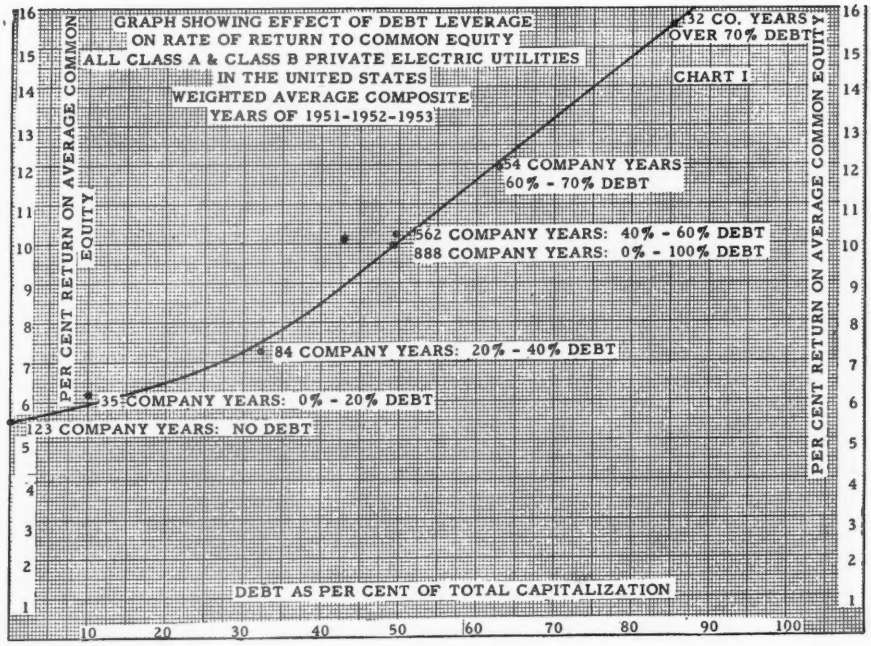
Earlier in this article, I pointed out that the return on rate base to a utility, in actual dollars, is the product or multiplication of rate base (however determined) by the allowable rate of return (however determined). Herein, we are dealing with two factors, one or both of which may be variables as far as the respective states are concerned, to determine a fair and specific end result. In such a situation, as just mentioned, it becomes increasingly apparent that one or both of the factors which were fair and equitable in one instance may be grossly unfair and inequitable in another case. In dealing with such situations as I have just mentioned, I think I am safe in saying that most regulatory commissions are vested with authority embracing a reasonable degree of latitude in determining what is a fair rate base and what is a fair rate of return to be related thereto.

In such thinking, a range of latitude is permitted in the determination, not only of the rate base, but its related rate of return which will produce a just and equitable return in terms of allowable earnings. From such procedure, it is possible to use a rate base which may range from original cost to reproduction cost new and apply thereto a rate of return which will produce a fair return spelled out in dollars.

ONE of the primary responsibilities and obligations devolving upon regulatory commissions is to provide a company with sufficient earnings to maintain its financial integrity and remain in a position to be able to attract new and additional capital for expansion. Particularly is this true in the Mountain-Pacific states where we have witnessed the tremendous expansion of utilities in this postwar era.

Many commissioners have listened to the testimony and pleadings that this or that company should earn 7½ per cent or 9 per cent on this or that kind of a rate base; that the common equity should be permitted to earn 12 per cent or 15 per cent as the case may be; that earnings should be sufficient to pay such and such a dividend with this or that pay-out ratio, that the earnings-price ratio of the common stock should be X per cent and requires such and such a return. Through this maze of technical evidence, regulatory commissions must labor and struggle to come up with a fair solution and answer to all parties concerned.

In some of the more recent rate cases before the Arizona commission, particularly telephone and electric utilities, the staff has been using a method of testing


GRAPH SHOWING EFFECT OF DEBT LEVERAGE
ON RATE OF RETURN TO COMMON EQUITY
ALL CLASS A & CLASS B PRIVATE ELECTRIC UTILITIES
IN THE UNITED STATES
WEIGHTED AVERAGE COMPOSITE
YEARS OF 1951-1952-1953
CHART I
PER CENT RETURN ON AVERAGE COMMON EQUITY
PER CENT RETURN ON AVERAGE COMMON EQUITY
32 CO. YEARS OVER 70% DEBT
54 COMPANY YEARS 60% - 70% DEBT
562 COMPANY YEARS: 40% - 60% DEBT
888 COMPANY YEARS: 0% - 100% DEBT
84 COMPANY YEARS: 20% - 40% DEBT
35 COMPANY YEARS: 0% - 20% DEBT
23 COMPANY YEARS: NO DEBT
DEBT AS PER CENT OF TOTAL CAPITALIZATION
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
10
20
30
40
50
60
70
80
90
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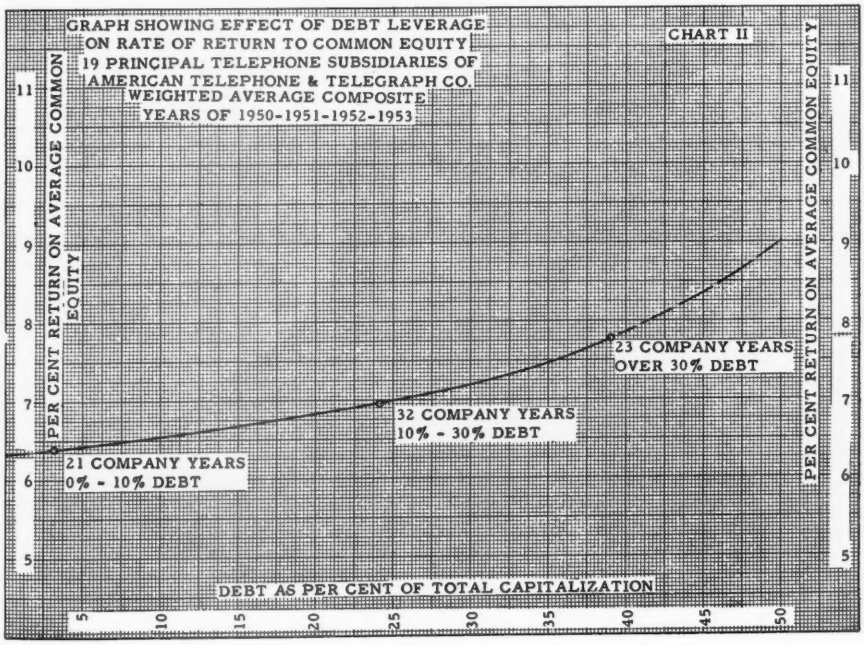
GRAPH SHOWING EFFECT OF DEBT LEVERAGE
ON RATE OF RETURN TO COMMON EQUITY
19 PRINCIPAL TELEPHONE SUBSIDIARIES OF
AMERICAN TELEPHONE & TELEGRAPH CO.
WEIGHTED AVERAGE COMPOSITE
YEARS OF 1950-1951-1952-1953
CHART II
PER CENT RETURN ON AVERAGE COMMON EQUITY
PER CENT RETURN ON AVERAGE COMMON EQUITY
23 COMPANY YEARS OVER 30% DEBT
32 COMPANY YEARS 10% - 30% DEBT
21 COMPANY YEARS 0% - 10% DEBT
DEBT AS PER CENT OF TOTAL CAPITALIZATION
11
10
9
8
7
6
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45
50

the fairness of over-all return to the company on the basis of the industry-wide average return to the common equity with respect to debt leverage. The Arizona staff uses other tests of a fair return in its presentation of rate cases and there is no implication herein that equity earnings are the only test of reasonableness.

WHEN we stop to consider that the capitalization of a company is composed of long-term debt in the form of bonds and debentures, preferred stock and common equity, it is evident the interest on debt and the dividends for preferred stock are fixed or contractual obligations, leaving only the common equity for the determination of a just and fair return. In other words, the common equity is the variable of these component items of capitalization since the requirements for debt and preferred stock are readily known.

In the electric utility industry, the class A and class B private electric utilities, composed of approximately 300 companies with a gross investment in excess of $25 billion and representing about 98 per cent of the private electric utility plant accounts in the nation, have averaged right at 10 per cent return to the common equity with an average debt ratio of 49 per cent for the recent years of 1951, 1952, and 1953 with very little variation from year to year. What is not so well known, however, is that within this group of about 300 companies, representing the industry you might say, there are wide variations in the rate of return to the common equity and the debt ratios of the component companies.

If we break down the entire group of these companies into several smaller component groups or steps with respect to their debt ratios, we find there is a close correlation giving a very smooth and consistent curve when we plot the rate of return to the common equity against the debt leverage or debt ratio. Of the 300 companies, there are about 40 companies having no debt and we find this group has averaged about 5½ per cent return on common equity. On the other hand, there are about 11 companies at the other extreme with an average debt ratio in excess of 85 per cent of total capitalization which have averaged more than 15 per cent return to the common equity. Between these two extremes, however, are about 250 other companies with varying debt ratios and varying rates of return to the common equity, all of which, when considered on a weighted average long-term basis, show a very close correlation or relationship of the rate of return on common equity with respect to debt leverage.

In other words, here is the industry and what it has done in recent years, representing the composite and compounded average judgment of some 40 state regulatory agencies in their determinations of what is a fair return. Consciously or otherwise, the over-all industry experience throughout the land has been such that there is a consistent pattern of return to the common equity with respect to debt leverage. The results of the studies made by the Arizona staff are shown in graphic form on Chart I, page 725.

IN the telephone industry, the major segment of this business is represented by the 19 principal telephone subsidiaries of American Telephone and Telegraph Company with a gross plant investment of about $12 billion serving about 85 per cent

of all the telephones in the nation. During the recent years of 1950, 1951, 1952, and 1953, these principal telephone subsidiaries have averaged about 7¼ per cent return to the common equity with an average debt ratio of about 29½ per cent. Here, again, there are variations within this group of operating companies, although the range of variation, both on debt ratio and the return to common equity, is not nearly so great as we found in the electric industry. Generally speaking, over this period of four years, the return to common equity has ranged from about 6 per cent at or near zero debt ratio to about 9 per cent at 50 per cent debt ratio; and the close correlation we found in the electric industry, when we plotted the rate of return to the common equity against debt ratio, is equally as consistent in the telephone industry.

The results of the study made by the Arizona staff are shown in graphic form on Chart II, page 725.

Here, again, we have what may be termed the industry, or at least the major portion of it, and the composite weighted average judgment of 40-odd state regulatory commissions of what is a reasonable return.

IN the natural gas industry, there are approximately 150 companies reporting annually to the Federal Power Commission, of which about 126 companies, with an average capitalization of nearly $6 billion, derive 50 per cent or more of their income from gas operations. Here, again, we find if we plot the rate of return on common equity against debt ratio there is a clearly defined and comprehensive pattern of correlation from which we obtain equally as good results as when we studied the electric and telephone industries. The results of the studies made by the Arizona staff are shown in graphic form on Chart III, page 729.

CHART IV (page 729), which is the last of the graphic charts herein, is merely a summarization or consolidation of the studies shown in Charts I, II, and III in which we have superposed the curves of correlation for the electric, telephone, and gas industries, one upon the other, for comparative purposes of review. Note that the curve for the telephone industry has not been carried beyond 50 per cent debt ratio for the very good reason very seldom is there found a telephone subsidiary of American Telephone and Telegraph Company carrying as much as 50 per cent debt in its capitalization.

Through the years, by virtue of custom and continuing practice, many of us have come to look to the construction of a rate

¶ "EVEN *in those states which may consider it lawfully necessary to construct a rate base for the determination of the reasonableness of rates and charges, we find wide variations of opinion as to what reasonably constitutes the elements of a rate base. While the great majority of the states consider plant and property at original cost, there are some deviations from this concept reaching all the way to present-day reproduction cost less observed depreciation as has been used in a few states.*"

base and the attachment of an associated rate of return as the basis of reasonableness of the return to be realized. Since rate bases and rates of return do vary so widely, it occurs to me there are other methods of testing the reasonableness of a return; and the method of return to the common equity with respect to debt leverage is one of the tests which has been used by the Arizona staff.

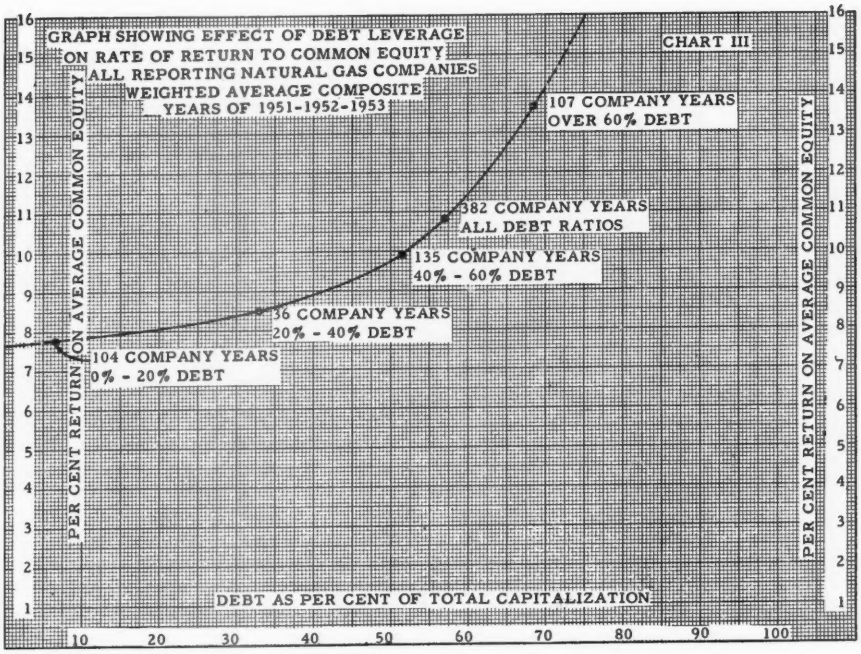
IN the various branches of the utility industry, the plant and properties which have been built and dedicated to public service are the physical or tangible evidence of dollars invested to serve. These dollars of investment are represented by the various forms of capitalization which include bonds, debentures, preferred stock, common stock, and the surplus. By providing sufficient dollars of earnings to adequately compensate the various components of capitalization or the classes of investors in accordance with industry-wide standards, that number of dollars may then be related to any rate base to determine the rate of return to be associated therewith.

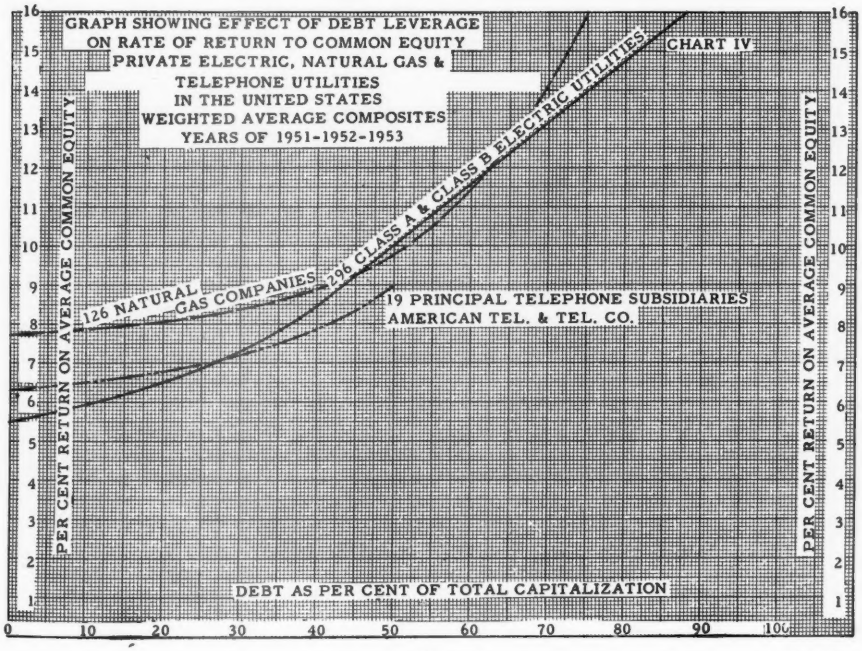
When we establish a rate base and arbitrarily attach a rate of return thereto, we are working merely from the assets side of the balance sheet with no particular consideration of what the company's earnings requirements may be; but when we determine over-all earnings requirements, we are working from the liabilities side of the balance sheet with a balancing of the respective interests in, what I consider to be, a more intelligent approach to the solution of a particular problem. The thought occurs to me that the fair and equitable solution of the problem is to work from both sides of the balance sheet. In the final analysis, the purpose of a return in dollars, however determined, is to compensate investors of dollars rather than inanimate objects such as poles, generators, telephones, cables, and pipelines on a basis of replacement costs, however determined.

WITH such an approach to the problem, we may use any type of a rate base which may vary from original cost to reproduction cost, year-end or year-average, "split the difference," or a so-called "blended rate base." From any starting point, we may then determine the rate of return to be associated with whatever rate base is used so that a sufficient number of dollars of return are produced to adequately compensate the investors in keeping with industry-wide standards. It is evident, therefore, that the rate base and its concomitant rate of return must be viewed concurrently in the light of each other rather than separate entities if we are to achieve a fair end result of actual return.

Returning, briefly, to some of the legal aspects of the question, we think it is rather significant to note some of the language of court decisions with respect to the determination of a rate base and its place in commission decisions and orders. In the case of New England Teleph. & Teleg. Co. *v.* State of New Hampshire (95 NH 353, 78 PUR NS 67), the New Hampshire supreme court in 1949 said:

> . . . Under established practice, rates have customarily been fixed by determining a proper rate base upon which the utility should be entitled to a return, a rate of return which it should of reasonably be entitled to earn thereon, and


GRAPH SHOWING EFFECT OF DEBT LEVERAGE
ON RATE OF RETURN TO COMMON EQUITY
ALL REPORTING NATURAL GAS COMPANIES
WEIGHTED AVERAGE COMPOSITE
YEARS OF 1951-1952-1953
CHART III
107 COMPANY YEARS
OVER 60% DEBT
382 COMPANY YEARS
ALL DEBT RATIOS
135 COMPANY YEARS
40% - 60% DEBT
36 COMPANY YEARS
20% - 40% DEBT
104 COMPANY YEARS
0% - 20% DEBT
PER CENT RETURN ON AVERAGE COMMON EQUITY
DEBT AS PER CENT OF TOTAL CAPITALIZATION


GRAPH SHOWING EFFECT OF DEBT LEVERAGE
ON RATE OF RETURN TO COMMON EQUITY
PRIVATE ELECTRIC, NATURAL GAS &
TELEPHONE UTILITIES
IN THE UNITED STATES
WEIGHTED AVERAGE COMPOSITES
YEARS OF 1951-1952-1953
CHART IV
126 NATURAL GAS COMPANIES
296 CLASS A & CLASS B ELECTRIC UTILITIES
19 PRINCIPAL TELEPHONE SUBSIDIARIES
AMERICAN TEL. & TEL. CO.
PER CENT RETURN ON AVERAGE COMMON EQUITY
DEBT AS PER CENT OF TOTAL CAPITALIZATION

the amount of revenue required to produce the resulting return, and hence to be translated into rates.

In the case of Commonwealth Teleph. Co. *v.* Wisconsin Pub. Service Commission (252 Wis 481, 73 PUR NS 97), which concerned an order of the Wisconsin commission, the Wisconsin supreme court in 1948 stated:

> How can the commission or the reviewing court or the utility or the public determine whether the profit is proper unless the commission makes specific findings of the "relevant facts and circumstances"? The commission must determine what those are and set them forth as required by law. Those essential facts which control each case will then determine the rate base.
>
> If the rule were otherwise, the courts would have no rule to apply upon review, and the commission could on rehearing in this same case a year hence determine that the present rate is unreasonable and that $25,000 of profits would be reasonable for the company to enjoy; and the consumers would then be bound by the commission's abstract conclusion of "reasonableness." It was not the intention of the legislature to bestow such arbitrary powers upon the commission, and nothing in the statutes can be so construed.

In 1947, the Wisconsin commission had stated (70 PUR NS 5, 10):

> . . . The rates herein prescribed are arrived at without determining any rate base, and without determining any specific figure as constituting a "fair rate of return" on anything that may be claimed to be a proper rate base. The rates herein prescribed are estimated and intended to afford approximately an annual net profit of a determined number of dollars which we think it reasonable for the utility to enjoy from the operation of its business.

In the case of New England Teleph. & Teleg. Co. *v.* Vermont Pub. Service Commission, 115 Vt 494, 79 PUR NS 508, decided by the Vermont supreme court in 1949, where the commission order was appealed by the company on the ground the commission findings were so deficient in the determination of essential and controlling facts that the order denied the company procedural due process, the court said:

> A reasonable and usual method for a commission to adopt in fixing rates is to determine the kind and amount of a proper rate base. It then determines, upon all the evidence in the case, the rate of return which the utility should reasonably be entitled to earn thereon. . . .

Later in this same opinion, the court said:

> . . . In other words, although the Hope Case held that a commission was not bound to the use of any single formula or combination of formulae in determining rates, it is not thereby relieved from the duty to disclose the "method employed" to reach the prescribed rates, so that the validity of its conclusions may be tested by judicial review. . . .

In the case of Lowell Gas Co. *v.* Massachusetts Dept. of Pub. Utilities (1949) 324 Mass 80, 78 PUR NS 506, the court said:

> The order, thus summarized in detail, is virtually barren of findings which reveal the principles underlying the department's conclusions or which would enable the public or the company intelligently to take future action in conformity with these principles. . . .

As a concluding corollary to some of these statements of high courts throughout the land, it might be appropriate to quote the late Justice Cardoza of the United States Supreme Court in the case of United States *v* Chicago, M., St. P. & P. R. Co. (1935) 294 US 499, when he said:

> We must know what a decision means before the duty becomes ours to say whether it is right or wrong.

WHETHER or not the construction of rate base is lawfully necessary in the determination of the reasonableness of the return flowing therefrom will vary from state to state depending upon the constitutional or statutory requirements of the particular state. I think we can agree it is a legal problem and, in view of the varying legal requirements in each state, it is something which must be reconciled to each state's particular legal requirements. However, in the light of the discretionary range of judgment which a regulatory commission may exercise within reasonable limits, both with respect to the determination of the rate base and its associated rate of return, it would appear there are other and more equitable elements to be considered.

Irrespective of what we may use for a rate base or what the allowable rate of return may be, it seems to me the end result of actual return is the important consideration. Since custom and practice look to the rate base and an associated rate of return, why not construct the rate base on the accustomed working basis and relate to it a rate of return which will produce a fair and equitable over-all return?

Destructive Tax Inequities

"WHEREIN lies the destructive power of high taxes? In general, this power springs from eliminating or reducing incentive to hard work, to thrift, initiative, and risk taking. How so? By seizure of the fruits of labor, of talents and special abilities, and of savings. In the intermediate state of destructive taxation, the exercise of taxing powers can accomplish specific destruction by exempting certain sectors of a business from their heavy burden.

"We are in a time when taxes to support the cost of government have been superimposed one upon another to produce an enormous increase in the delivered cost of most articles offered to the public. During this important period of change, however, governmental proprietary businesses in many fields have remained exempted from taxes. In the case of power, the federal government has also given other substantial subsidies which have caused governmental power business to expand vigorously."

—HAROLD QUINTON,
President, Southern California Edison Company.

Public Relations Build a Better Regulatory Climate

PART II.

In this second instalment, the author analyzes the major influences which affect the condition of a public utility company's public relations. There is, for example, the impact of a company's conduct and practices, as well as the impact of developments beyond the control of the company itself. The importance of the employee attitude is also given careful attention.

BY ROBB M. WINSBOROUGH*

Opinion-forming Forces

THERE are two major sets of influences which affect the condition of the utility company's public relations. These are:

1. The influences which grow out of company conduct and practices of all kinds.
2. The pressures which grow out of noncompany influences.

Let us examine the company influences first.

Every outside contact an employee makes has some effect upon the company's public relations, either to improve them, maintain them, or to damage them. There are a great many of these contacts. On the average, the electric company has one employee for about every one hundred families. The contacts these employees make at work and off the job are probably the most important single public relations influence. They should be coached in good contact methods.

The list of people who should be coached in good customer relations and public relation techniques includes the entire man-

*Consultant, Middle West Service Company, Chicago, Illinois. For additional note, see "Pages with the Editors."

agerial staff, the truck and auto drivers, tree trimmers, right-of-way men, line crews, servicemen, trouble shooters, meter setters, meter readers, office cashiers, telephone girls, salesmen, and credit clerks.

Every written contact the company makes has an effect on company public relations. These written contacts include bill delivery, delinquent notices, cut-off notices, contract applications, deposit requests, letters on disputed bills, and all other letters.

The third section of company practice which affects public relations includes newspaper, radio, television, and billboard advertising, all mail enclosures, all signs on company property or offices, all publicity releases, all speeches, all interviews.

The Influence Is Continuous

ALL company practices exert a continuing, constant influence for good or bad public relations of the utility. These practices are within the control of the utility, and therefore this influence can be directed by the utility. There is another group of noncompany influences which exerts just as continuous an influence. These influences are less subject to direction by the utility, although some protective action is possible.

These outside influences on public relations include the local newspaper attitudes toward business in general. The attitude of local politicians towards business in general, and utilities in particular, is such a continuing influence. Certain influence groups are set up for the purpose of exerting public opinion pressures. The attitudes and activities of these groups are important to the utility. Included, among others, are the attitudes and activities of the League of Women Voters, church leaders, educational leaders, labor union leaders, organized consumer groups, press associations, veterans' organizations, parent-teacher groups.

The viewpoints expressed in national magazine articles and the attitudes of national radio and television commentators towards business in general, and utilities in particular, are constant influences on the public relations of the operating utility. So also is the attitude expressed by members of the federal government.

WITH so many pressures operating so continuously to influence public opinion toward the utility, the only sure way of knowing exactly how the utility stands with its own public is to make periodic public attitude surveys.

National survey organizations have made the general principles of opinion and attitude surveying well understood. The particular utility can set up a satisfactory cross-section sample of its own territory. The sample size can be adjusted to the degree of precision the utility desires. Special surveys can be made of special groups or blocs such as the foreign-born, the so-called "thought leaders," the union group, the farmers, co-op members, or any other opinion or pressure group.

There is an abundance of information upon which to design a survey which will produce meaningful results. It is, of course, essential to know what one is trying to find out before the survey is undertaken or the effort will be wasted.

The Importance of Employee Attitude Is Very Great

IT is difficult to overemphasize the importance of good employee attitudes. Some years ago Opinion Research Cor-

poration conducted a study in six towns where manufacturing plants were located. One purpose was to find the sources of information from which people formed opinions about these companies. One of the important findings was that information received from and through employees was the largest single source of information which the public had about any of these plants.

It is inevitable that employee attitudes will be communicated to the public. Unfavorable employee attitudes can easily offset all that can be done with advertising and public information activities. Unless the employees' speech, conduct, and attitudes confirm the utility's public information statements, the public information loses much of its effectiveness.

THE way to find out the state of employee opinion is to make a survey of employee attitudes. Such employee opinion polls are not difficult, nor are they dangerous or expensive. There is often, at first, some little reluctance on the part of management. There may be a hang-over of the old feeling that it is dangerous to let employees express their views.

In actual practice this fear proves to be unfounded. Properly conducted employee polls do not provoke difficulty. On the contrary, they improve employee morale. In addition, a large number of worthwhile suggestions for the improvement of public and employee relations are usually volunteered.

In addition to public and employee surveys, there are other methods of evaluating the company's public relations. A clipping record of newspapers can be maintained, showing favorable and unfavorable items by frequency and size. A record of customer complaint frequency should be a routine part of the company operation. Frequency and seriousness of complaints to the public service commission are indicators of importance.

Appraise Your Research Findings

LET us assume that our typical utility has completed the public and employee surveys. From them a course can be charted. The things of which the public disapproves can be identified. Either they can be changed or a really satisfactory explanation of the need for these practices can be worked out and communicated to the public. The method of communication might be through the employees, who receive the information themselves in the form of employee conferences. The radio, television, and newspaper can be used to give the necessary information to the public.

❦

¶ "EVERY *outside contact an employee makes has some effect upon the company's public relations, either to improve them, maintain them, or to damage them. There are a great many of these contacts. On the average, the electric company has one employee for about every one hundred families. The contacts these employees make at work and off the job are probably the most important single public relations influence. They should be coached in good contact methods.*"

From the employee survey top management will find out the wide differences in the attitude of employees towards their supervision in different sections of the company. The needed corrections are not difficult to make. They can be put into effect, usually, at no increase in cost. An immediate boost in morale is the usual result.

Critical Self-examination

FOLLOWING the survey, if not before, the company should undertake a critical self-examination of all present company practices which obviously can affect public relations. One step is a review of all printed forms and form letters which reach the public. The man who makes this review, or the committee which makes this review, should ask:

1. Are they necessary?
2. Can they be understood easily?
3. Can they be simplified?
4. Are they offensive?

Routine periodic checks should be set up for mechanical phases of service. This involves some periodic check on voltages, particularly on long secondaries in fringe areas with air conditioning or heavy electric cooking load. The record of interruptions should be examined. Sometimes these records are startling. Someone not in the operating department should periodically review the record of frequency and duration. The degree of regulation, which is important with television, should be spot checked periodically. The accuracy and regularity of meter reading are basic to good public relations. The same is true of regularity and promptness in the mailing of bills. Bills should arrive about the same day of the month and cover approximately the same number of days of service each month.

AFTER the self-examination of physical factors concerning company service, it is time to start checking employee contacts. This should include examination of the record of customer service complaints. What is the cause, how long does it take to fix them, how many are repeats? Someone should examine the appearance of the meter readers, servicemen, and appliance repair men to see that their clothing is clean and their demeanor acceptable.

Some check should be attempted on the courtesy of the above groups. This is a difficult thing to do. It takes pretty severe discourtesy to provoke a separate complaint to the company. Nevertheless, it is useful to keep a running account of complaints about discourtesy, and if certain employees continually fail, other duties should be found for them.

Monitoring telephone calls is a very touchy thing. The telephone company can be of help in suggesting where and how conversations can be monitored beneficially.

An examination should be made of meter sets and cut-ins, to see how long it takes to get service to new customers and on moves. If the company repairs appliances, a check should be made on the length of time customers wait for the return of appliances.

For a certain period of time, the company should review every letter written. If this is done for thirty days the company will have a satisfactory sample of its correspondence which can be gauged for clarity, friendliness, and accuracy. If needed, a letter-writing improvement program should be established and carried on.

Public Relations Problems Are Not Secondary

"THE failure of an operating electric utility to build and maintain good public relations is almost always because of failure to assign the same importance and urgency to public relations that are regularly applied to operating problems. The chief executive faces a constant stream of important problems. All too often he finds it difficult to divert enough serious attention to a genuine and continuous public relations program. This is unfortunate because ultimately our survival depends upon good public relations. The neglect of public relations can be overcome only by the alert action of a chief executive who, himself, becomes convinced that public relations are a vital matter for any regulated utility."

A STUDY should be made of the public relations effect of the personal behavior of employees. This involves trying to determine whether or not courteous, safe driving is a well-established habit; whether the employees live up to promises made to customers; do their conversations with friends reflect loyalty or discontent? It does not require "snooping" to find out these things; it only requires alert awareness. Do the employees pay their personal bills to merchants promptly? The utility ordinarily has a definite cut-off policy which will be applied to any merchant who does not pay his account. It is understandable that the merchant will feel badly if he is himself carrying long overdue accounts from utility employees.

Check the Appearance of Company Property

THE physical appearance of the facilities which the public sees influences public relations. Slovenly housekeeping leaves an unpleasant association in the mind of most customers. Dirty trucks and autos, rusty fenders and bad paint jobs, do not leave an impression of modernity,

efficiency, and capability. Dirty show windows that are not well lighted do not inspire a warm feeling. Run-down company signs are a detriment. If the company owns and maintains the street-lighting system, is it well maintained?

Check These Items

If a final bill is required when a customer moves, does the customer have a great deal of trouble getting such a bill promptly? Is there an unreasonable delay in refunding deposits after final bill payment?

What does the company do about appliance dealer relations? How long since this subject received serious study? The attitude of dealers can also be ascertained in a public opinion survey.

Is the company's service to newspapers, radio and television stations satisfactory in every respect?

Is there a periodic check to see that customers are on the most favorable rates?

Are there periodic contacts with large commercial and industrial customers? Are the people who make these contacts properly trained and are they really competent?

Is the safety program and equipment adequate? Is it given some publicity in the local papers to instill employee pride and public understanding?

Start Employee Training

On the basis of the findings which emerge from the critical self-examination outlined above, and the public and employee attitude surveys suggested, the company can start employee training and information programs as needed in any or all of these subjects:

1. The AGA-EEI film program on customer relations.
2. Job training where needed to remedy faults.
3. Instruction in human relations principles and practice.
4. Supervisory training programs in fundamentals of supervision, human relations, and management self-development.
5. The public information topics.

Begin Inside

The program described so far deals almost entirely with internal matters. This part of the program is necessary to the company so that it can begin to tell the public how the company lives.

Public relations is a way of life. We must live right and then see that the people know it. Only after we have studied and corrected our own internal defects are we ready to begin a continuous program of informing the public.

The specifications on what to say can be distilled out of the public attitude survey, the employee survey, and the company's self-examination.

All available means of public communication can be used, fitting the message to the medium and to the audience. For the mass story on value, service, price, and future power supply, the channels available include the radio, television, and newspapers.

The company story can also be told in public speeches before civic clubs and other community groups, personal tours to power plants or other impressive property, lectures for specialized influence groups, such as schoolteachers and PTA, editors and publishers, ministers, doctors, public officials, civic and women's clubs, Boy Scouts, 4-H and FFA, county agents and farm groups.

A definite program, and the machinery for it, should be set up to take advantage of such special things as plant openings, regular plant tours, new office openings, business-industry-education days, etc.

There Is an Abundance of Good Material

For the utility which desires to improve its public relations, there is a wealth of good usable material. AGA-EEI has produced an excellent series of films on customer relations matters. Useful employee relations materials are available from the National Foremen's Institute, Vocafilm, Armstrong Cork, McGraw-Hill, and other producers of teaching aids and films.

Some excellent materials are available from the U. S. Chamber of Commerce, Foundation for Economic Education, and the service companies in the electric industry.

The failure of an operating electric utility to build and maintain good public relations is almost always because of failure to assign the same importance and urgency to public relations that are regularly applied to operating problems.

The chief executive faces a constant stream of important problems. All too often he finds it difficult to divert enough serious attention to a genuine and continuous public relations program.

This is unfortunate because ultimately our survival depends upon good public relations. The neglect of public relations can be overcome only by the alert action of a chief executive who, himself, becomes convinced that public relations are a vital matter for any regulated utility.

The "Savings" of Public Ownership

"THERE is an . . . alleged advantage of 'public' power which proves upon examination to be purely fictitious. This is the supposed saving due to the fact that public power agencies are exempt from taxation. Surely nothing could be more obvious than that taxes 'saved' by a power agency are lost to the public treasury and must be recovered from some other source, so that what the people appear to save as consumers of power they must give back as taxpayers. There is no saving to the people as a whole. There may be—indeed there is very likely to be—a saving to some at the expense of others; in that case the tax exemption operates as a hidden and therefore particularly vicious form of subsidy. In any case, the real cost of power to the people as a whole is the cost of actually producing it, and taxes do not enter into the calculation.

"In the final analysis, the question of 'public' VERSUS 'private' power is simply a question of industrial organization. After centuries of unhappy experience with 'public' control of economic activity, the peoples of the Western World decided to try the 'private' form. The payoff has been rich in terms of efficiency, equity, and freedom, and the principles that have made it so apply to productive effort in general. Why should the generation of power be a unique exception?"

—EXCERPT *from "Guaranty Survey," published by Guaranty Trust Company of New York.*

What Is the "Fair Rate of Return"?

This author reviews leading court decisions as well as recent authoritative publications on the subject of the rate of return allowance, but reaches somewhat different conclusions than those found in another featured article in this issue. He concludes that a rate of return should at least never be lower than is required to produce a fair amount to cover the cost of capital.

By CHARLES W. KNAPP*

THE direct result of putting the question which forms the title of this article is to raise other questions of a most practical sort. When does a rate of return become inadequate? When does it become excessive? In order to answer these questions it becomes necessary to find a yardstick for measuring adequacy and inadequacy. From a practical standpoint it would seem that the most obvious yardstick should be provided by an answer to the question: What must a rate of return accomplish in order to be designated as "fair"?

Perhaps, even before endeavoring to answer this question, it would be pertinent to define the meaning of the term "return" and that of the term "rate of return."

The "return" earned by a utility is customarily regarded as the amount of income available for interest and dividends, and for addition to surplus, after meeting all expenses of operation, including depreciation, income taxes, and other taxes.

The "rate of return" expresses the percentage relationship of the "return," as defined in the preceding paragraph, to a "rate base." Thus, if the rate base equals $1,000,000 and the return is $60,000, then the rate of return equals 6 per cent.

The "rate base" constitutes the utility's investment in physical plant which is used to provide the particular type of service furnished by the utility, less applicable reserves for depreciation and amortization. In addition to the physical plant and property, under ordinary circumstances, the rate base will include an allowance for required investment in materials and sup-

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plies, plus an allowance for required cash working capital.

FROM the foregoing definitions[1] it is seen that an experienced "rate of return" cannot be determined until both the "rate base" and the dollar amount of the "return" have been ascertained. It is then determined as the quotient (multiplied by 100) which results from using the "rate base" as the divisor and the "return" as the dividend.

Accordingly, viewed from the regulatory standpoint, the allowance of a given "rate of return" means, in effect, that the product derived as the result of multiplying the predetermined "rate base" by such "rate of return" measures the dollar amount of allowable "return." Given such "return" it is then relatively simple to calculate the amount of allowable revenues, which, if greater than those experienced by the particular utility during the annual period used as the test period, will call for an increase in rates in order to produce the allowable "return."

But such increase in rates may actually produce a lesser "return" in dollars and, hence, a lesser "rate of return," than that contemplated by a regulatory body at the time of issuance of its rate increase order.

THIS has been particularly true in the case of the telephone industry, for which the factor of "attrition" in rate of return has required recognition if the rate of return prescribed by a regulatory body was to be actually realized. Such recognition has been required because, wholly apart from the effects of the rising tide of inflation during the postwar years (which, of course, affected the entire utility industry), the telephone industry experienced a tremendous increase in required investment per telephone. For example, in the case of one telephone company concerning which the writer has had occasion to become informed, the average investment (intrastate) per telephone was $168 at the end of 1950, yet the investment for each telephone added in the two years thereafter was about $400 per telephone.

The writer, appearing (on behalf of a municipality) in a rate case involving this telephone company, recommended to the regulatory body that the rate base in this instance be a year-end rate base, and that it include plant under construction, both recommendations having been designed to afford the telephone company a measure of protection against "attrition."

REVERTING to the question: What must a rate of return accomplish in order to be designated as "fair"?, perhaps the most direct answer, from a practical standpoint, is to be found in certain well-known decisions of the Supreme Court of the United States, of which three appear to stand out in sharpest focus. Two of these decisions were handed down in the year 1923: Missouri ex rel. Southwestern Bell Teleph. Co. *v.* Missouri Pub. Service Commission (*262 US 276*, PUR1923C 193) —as to which reference is made only to the concurring opinion of Mr. Justice Brandeis, with whom Mr. Justice Holmes concurred; and, Bluefield Water Works & Improv. Co. *v.* West Virginia Pub. Service Commission (*262 US 679*, PUR-1923D 11). The third decision is that in

[1] The foregoing definitions are taken from the discussion on the basic nature of the return allowance, to be found in *"Rate of Return,"* by Ellsworth Nichols, Public Utilities Reports, Inc. (1955), at page 2 *et seq.*

Federal Power Commission *v.* Hope Nat. Gas Co. (320 US 591, 51 PUR NS 193), decided January 3, 1944.

In his concurring opinion in the Southwestern Bell Case, Mr. Justice Brandeis said, among other things, the following:

> . . . The compensation which the Constitution guarantees an opportunity to earn is the reasonable cost of conducting the business. Cost includes not only operating expenses, but also capital charges. Capital charges cover the allowance, by way of interest, for the use of the capital, whatever the nature of the security issues therefor; the allowance for risk incurred; and enough more to attract capital. The reasonable rate to be prescribed by a commission may allow an efficiently managed utility much more. But a rate is constitutionally compensatory, if it allows to the utility the opportunity to earn the cost of the service as thus defined. . . .
>
> In essence, there is no difference between the capital charge and operating expenses, depreciation, and taxes. Each is a part of the current cost of supplying the service; and each should be met from current income. When the capital charges are for interest on the floating debt paid at the current rate, this is readily seen. But it is no less true of a legal obligation to pay interest on long-term bonds, entered into years before the rate hearing and to continue for years thereafter; and it is true also of the economic obligation to pay dividends on stock, preferred or common. . . . Where the financing has been proper, the cost to the utility of the capital, required to construct, equip, and operate its plant, should measure the rate of return which the Constitution guarantees opportunity to earn.

IN the well-known Bluefield decision, handed down later in the same year (1923), the following paragraph sets forth the characteristics of the "fair" rate of return:

> . . . What annual rate will constitute just compensation depends upon many circumstances and must be determined by the exercise of a fair and enlightened judgment, having regard to all relevant facts. A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are real-

¶ "THE *'return' earned by a utility is customarily regarded as the amount of income available for interest and dividends, and for addition to surplus, after meeting all expenses of operation, including depreciation, income taxes, and other taxes. The 'rate of return' expresses the percentage relationship of the 'return' . . . to a 'rate base.' Thus, if the rate base equals $1,000,000 and the return is $60,000, then the rate of return equals 6 per cent."*

ized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market, and business conditions generally.

MR. JUSTICE DOUGLAS, in delivering the opinion in the Hope Case, had, among other things, the following to say:

> The rate-making process under the act, *i.e.*, the fixing of "just and reasonable" rates, involves a balancing of the investor and the consumer interests. Thus we stated in the Natural Gas Pipeline Company Case (decided in 1942) that "regulation does not insure that the business shall produce net revenues." . . . But such considerations aside, the investor interest has a legitimate concern with the financial integrity of the company whose rates are being regulated. From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. . . . By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital. See Missouri ex rel. Southwestern Bell Teleph. Co. *v.* Missouri Pub. Service Commission *262* US *276, 291*, PUR1923C 193 (Mr. Justice Brandeis concurring). The conditions under which more or less might be allowed are not important here. Nor is it important to this case to determine the various permissible ways in which any rate base on which the return is computed might be arrived at. For we are of the view that the end result in this case cannot be condemned under the act as unjust and unreasonable from the investor or company viewpoint.

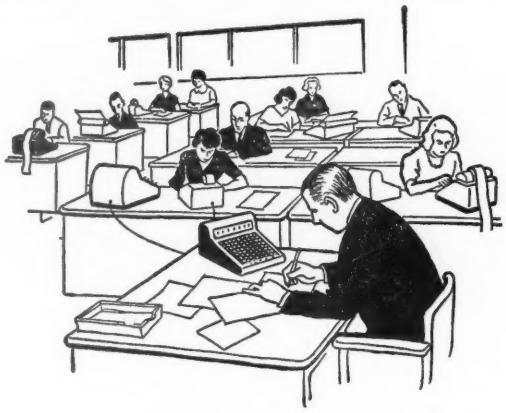
NOW that we have seen how the Supreme Court (in the Southwestern Bell Case, Justices Brandeis and Holmes) has viewed the requirements to be met by a "fair" rate of return, we may next inquire into the mechanics of measurement of what constitutes the "fair" rate of return; *i.e.*, we may search for an appropriate "yardstick."

Justice Brandeis was quite explicit when he said:

> . . . Where the financing has been proper, the cost to the utility of the capital, required to construct, equip, and operate its plant, should measure the rate of return which the Constitution guarantees opportunity to earn.

The Bluefield decision, also, when it said:

> . . . The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and



Relation of Rate Base to Return

"Is a fair rate of return to be conceived as an absolute or a relative? In other words, given a fair rate of return does it follow that, implying accuracy to forecasts of income, such rate of return, if granted, will result in a fair return, irrespective of the rate base to which such rate of return is applied? It will be seen at once that the application of a given rate of return to a net investment rate base may produce a return in dollars of an amount substantially less than that which would be realized if the same rate of return were applied to a rate base predicated on 'fair value' or 'reproduction cost new,' under present price levels."

should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. . . .

And, finally, the Hope decision, also, in these words:

. . . From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. . . . By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital. . . .

THUS, a "fair" rate of return, viewed from the practical standpoint of these well-known decisions of the Supreme Court, may be summarized as that rate of return which will assure the utility an opportunity to earn, in addition to operating expenses, depreciation, and taxes, enough more to provide for the capital

costs of the business. And, inasmuch as there can be no "return" until revenues cover operating expenses, depreciation, and taxes, it follows, from the decisions quoted, that the "return" must at least be equal to the capital costs of the business if it is to be a "fair" return. It also, of course, should be sufficient to assure confidence in the financial soundness and integrity of the enterprise, so as to maintain its credit and to attract capital.

In reference to this last requirement—namely, that a rate of return should be sufficient to enable the utility to attract capital—it is to be hoped that utility companies, by and large, will never be put to the test of endeavoring, as bankrupt enterprises, to attract capital. Certainly, if they should be put to that test, and do attract capital even though bankrupt, they will not acquire it on anything like the favorable terms upon which a financially sound utility will be able to acquire it. It is difficult to understand how the legal standard of the ability to obtain additional capital, consistently repeated in the above decisions, can create confusion, or is inappropriate as a standard, or how "a fair return is no requisite to getting more capital."[2] It may well be that a utility company can obtain more capital at a time when it is earning less than a fair return. But, if it can, it is only because the lenders have sufficient confidence in the regulatory system to believe that a fair rate of return will be granted to the utility if applied for. Without such confidence, even Moody's bond ratings would be subject to such rapid revision as to throw the bond market into turmoil.

[2] See "Is Cost of Capital the Fair Rate of Return?" by Herbert B. Dorau, PUBLIC UTILITIES FORTNIGHTLY, Vol. 56, No. 13, p. 1006, December 22, 1955.

SINCE, under the foregoing interpretation, the ability to attract capital implies the ability of a utility to maintain its credit over the long term, we may revert to that portion of the preceding summary of the three Supreme Court decisions in which it is said to follow that "the 'return' must at least be equal to the capital costs of the business if it is to be a 'fair' return."

Here we are faced squarely with the question which comprises the title of the article by Dr. Dorau, cited *supra*: Is cost of capital the fair rate of return?

At this point, however, one should be inclined to put the question: Is a fair rate of return to be conceived as an absolute or a relative? In other words, given a fair rate of return does it follow that, implying accuracy to forecasts of income, such rate of return, if granted, will result in a fair return, irrespective of the rate base to which such rate of return is applied?

It will be seen at once that the application of a given rate of return to a net investment rate base may produce a return in dollars of an amount substantially less than that which would be realized if the same rate of return were applied to a rate base predicated on "fair value" or "reproduction cost new," under present price levels.

Since, then, the return is an amount computed by applying a rate of return to a rate base, as defined earlier, it becomes apparent that the fairness of a rate of return is not an absolute, for it is but one of two elements entering into the computation of the return—the other element being the rate base.

Yet, if the fairness of the return is to be measured by its ability to cover the

capital costs of the business, would it not begin to appear that there may be no need to determine a rate base in the first instance?

IT is already true that for the local transit industry, the concept of the rate base has begun largely to lose its significance from the regulatory standpoint and, to the extent that it has not done so thus far, the writer predicts that the transformation ultimately will, as it should, become complete, the traditional formula that "rate base times rate of return equals return" giving way to the so-called "operating ratio" theory of regulation of rates for the transit industry.[3]

The writer belongs to that school which adheres to the net investment approach to regulation of utility rates, in so far as it is applied to other than transit utilities. But this article is, perhaps, not the place in which to discuss the pros and cons of that approach *versus* the "fair value" or "reproduction cost new" approaches, except to point in passing to the manner in which these different approaches affect the dollars of return to be produced under a given "fair" rate of return. In any event, it would appear that if the sole guide to a fair return in dollars were to be the measure of its ability to cover the current capital costs of the business, then the controversy over the relative merits of the various concepts of value for rate base purposes would become meaningless, and the question moot, regardless of the school of thought to which one belongs.

HOWEVER this may be, it does not appear likely that in the foreseeable future, regulatory bodies generally will depart from consideration of rate base. This would seem to be particularly true with respect to those jurisdictions which adhere to "fair value" or "reproduction cost new" as measures of value in determination of the rate base. As for those jurisdictions which adhere to the "net investment" approach to determination of the rate base, there seems to be a marked inclination toward the testing of the reasonableness of a given rate of return by relating the resulting return to the current capital costs of the business. Indeed, Massachusetts for long has followed the view that the fair return on the investment consists of the servicing of debt, payment of

[3] See the author's "Economics of the Transit Operating Ratio," PUBLIC UTILITIES FORTNIGHTLY, Vol. 56, No. 7, pp. 467-479, September 29, 1955.

¶ "To *the question: Why not limit the 'fair' rate of return to that necessary to cover the capital costs of capital already embarked in the enterprise, plus enough more to cover the estimated current cost of capital required to be obtained in the immediately foreseeable future?, the writer would reply that, aside from consideration of the interests of consumers and assuming a properly proportioned capital structure, it would constitute unfair treatment of investors if the utility were not permitted to earn a rate of return equal to that being earned at the time of the rate hearing by other business enterprises attended by corresponding risks and uncertainties.*"

contractual dividends on the preferred stock, and appropriate earnings for the common stock investment.

May we conclude, with Dr. Dorau, that "in any particular instance of return determination the cost of capital may be *more* than the fair rate of return, *less* than the fair rate of return, and, conceivably, at least under some rare circumstances, the *same* as the fair rate of return, depending on all of the other standards and procedures of rate level determination used in the particular situation"? (Italics supplied.)

At first glance, would it not be somewhat difficult to do other than agree with Mr. Justice Brandeis, in so far as concerns the minimum allowable "fair" rate of return, that "where the financing has been proper, the cost to the utility of the capital, required to construct, equip, and operate its plant, should measure the rate of return which the Constitution guarantees opportunity to earn"?

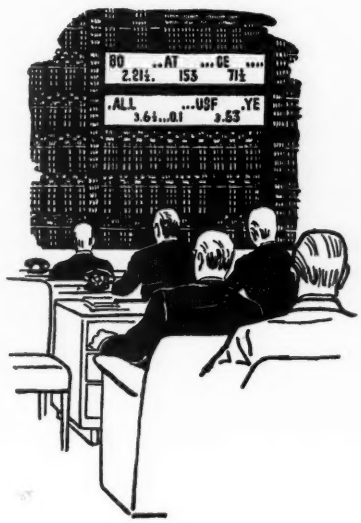
If one agrees with this view, then under what circumstances could the "fair" rate of return be *less* than that required to cover the capital costs of the business? One clew would seem to lie in a sentence of the Hope decision quoted above: namely, "The rate-making process . . . involves a balancing of the investor and consumer interests." Surely there may be times, as today in the local transit industry, when consideration of the interests of consumers precludes the granting of rate increases which would enable a transit utility company to earn the capital costs of the business. The issue of the economic value of the services rendered by a utility is not altogether uncommon, even in rate hearings involving utilities of other types.

Justice Brandeis' statement may appear to contain some ambiguity when altogether removed from its context. Yet a reading of his opinion leads to the conclusion that the capital costs to which he was referring were those currently being incurred by a utility at the time of a rate hearing. This interpretation would seem to be supported by another sentence from his opinion which continues to have pertinence currently; namely, "A rule which limits the guaranteed rate of return on utility investments to that which may prevail at the time of the rate hearing, may fall far short of the capital charge then resting upon the company."

It is to be noted that Justice Brandeis' statement is prefaced by the qualification: "where the financing has been proper." A reading of his opinion leads to the conclusion that he did not contemplate a utility's capital structure as consisting wholly of common stock. In fact, in one illustration given in his opinion, the utility was assumed to have a capital structure consisting of 75 per cent debt and 25 per cent common stock. We thus are not given the benefit of his view of what would constitute a "fair" rate of return for a utility capitalized wholly by common stock. Yet there is no question of the propriety, from an ethical standpoint, of such a form of capitalization. Nevertheless, it is patent that rates predicated on a rate of return sufficient to cover the capital costs associated with this form of capital structure would impose an unnecessary burden on consumers, inasmuch as the capital costs associated with common stock equity capital are substantially higher than those associated with capital in the form of debt or even preferred stock, to say nothing of

Investor Criteria

"As *to the validity of earnings-price and dividends-price ratios on the common stocks of utilities selected for comparison with the utility under consideration in a given situation, it would seem to be apparent that spot determinations of applicable ratios for comparative purposes would have little or no reliability as a measure for the determination of the currently estimated cost of common stock equity capital. But when these evidences of investors' demand for return on common stock equity securities are averaged over as long a period as ten years prior to the rate hearing, the resulting averages, it would seem to the writer, have attained a degree of reliability to which the criticisms leveled at spot determinations are not applicable.*"



income tax savings under present rates which can be realized by inclusion of a reasonable proportion of debt in the capital structure.

We may pass over, as being of academic interest, under what circumstances the "fair" rate of return may be the same as the current capital costs of the business, and proceed to inquire under what circumstances it may be *more* than that required for that purpose. As we have seen, Justice Brandeis believed that a rate of return is constitutionally compensatory if it allows a utility the opportunity to earn the "cost of the service" as defined in the first of the longer quotations from his opinion given earlier. It would be only fair to add to this his view that "the reasonable rate to be prescribed by a commission may allow an efficiently managed utility much more."

It is to be noted in this connection, however, that in the Bluefield decision (262 US 679, PUR1923D 11), decided later in the same year, the following sentence appears:

> . . . The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, *under efficient and economical management*, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. (Italics supplied.)

In Smith *v.* Illinois Bell Teleph. Co., decided by the Supreme Court in 1930 (282 US 133, PUR1931A 1), after quoting the longer excerpt from the Bluefield decision given earlier, down to the end of the paragraph quoted immediately above, the opinion continued with the following paragraph:

> It is evident that in the present case we are not dealing with an ordinary public utility company, but with one that is part of a large system organized for the purpose of maintaining the credit of the constituent companies and *securing their efficient and economical management*. . . . (Italics supplied.)

The writer is not aware of any instance in which a regulatory body or the courts have endeavored to calculate and grant any specific portion, of the rate of return allowed, as a reward for efficient and economical management. On the contrary, it would appear that such management is deemed essential to the proper conduct of a utility's business, and that its presence tends to mitigate the risks inherent in the enterprise. In other words, regulatory bodies appear to view efficient and economical management as an implied prerequisite for the obtaining of a fair rate of return upon application by a utility. Indeed, where inefficiency in management has been found to exist, commissions have been known to withhold the relief sought by a utility through its application for an increase in rates, and, in rare instances, to impose substantial fines for gross inefficiency in management.

APART, therefore, from efficient and economical management as a circumstance under which a "fair" rate of return might be prescribed that would produce a return more than sufficient to cover the capital costs of the business, what circumstances might be viewed as justifying a rate of return that would be more than sufficient for this purpose?

To those who belong to the "fair value" or "reproduction cost new" schools of thought, some increment to an otherwise "fair" rate of return would be regarded as necessary under present price levels, if the "integrity of the investment" is to be maintained. Either of these approaches to determination of value for rate base purposes is almost certain, under today's price levels, to produce a return more than sufficient to cover the capital costs of the business, assuming that the rate of return is viewed as an absolute; *i.e.*, that a given (identical) "fair" rate of return can be determined which is "fair" both in cases where the rate base is measured under the "net investment" principle and in cases where it is measured either under the "fair value" rule or under the "reproduction cost new" principle.

ALTHOUGH the writer has refrained from entering into a discussion of the relative merits of these various measures of "value" for rate-making purposes, it is only fair to point out that should prices ever fall below prewar price levels, it would appear that strict adherence to either the "fair value" rule or the "reproduction cost new" principle at such time would act as a boomerang in its effect upon the utility industry or, rather, that portion of it which up till then has enjoyed its benefits. Presumably, those companies being regulated under the "fair value" rule would, in that event, suffer less, as they would have benefited less, than those companies regulated

under the "reproduction cost new" principle.

ASIDE from this consideration, is there still another circumstance under which a "fair" rate of return may be *more* than sufficient to cover the capital costs of the business?

In the writer's opinion, there is. Such a circumstance would arise, as the writer sees it, when the *current* cost of obtaining capital, to enterprises engaged in "business undertakings which are attended by corresponding risks and uncertainties," is greater than the capital costs already incurred by the utility under consideration. To put it differently, such a circumstance would arise when the estimated current capital costs of replacing the entire existing capital, including capital needs of the immediately foreseeable future, of the utility under consideration, are greater than the capital costs already incurred. Here, of course, the writer is referring to the over-all percentage of capital costs, rather than to their dollar amount. Such over-all percentage may be derived, as explained by Dr. Dorau at page 1012 of his previously cited article, once determinations have been made separately for the estimated percentages of the current capital costs of debt, preferred stock, and common stock capital.

To the question: Why not limit the "fair" rate of return to that necessary to cover the capital costs of capital already embarked in the enterprise, plus enough more to cover the estimated current cost of capital required to be obtained in the immediately foreseeable future?, the writer would reply that, aside from consideration of the interests of consumers and assuming a properly proportioned capital structure, it would constitute unfair treatment of investors if the utility were not permitted to earn a rate of return equal to that being earned at the time of the rate hearing by other business enterprises attended by corresponding risks and uncertainties. Moreover, as stated in the Bluefield decision:

> . . . A rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market, and business conditions generally.

TO summarize the writer's viewpoint, therefore, apart from consideration of the interests of the consumers, and assum-

¶ "IT *is difficult to understand how the legal standard of the ability to obtain additional capital . . . can create confusion, or is inappropriate as a standard, or how 'a fair return is no requisite to getting more capital.' It may well be that a utility company can obtain more capital at a time when it is earning less than a fair return. But, if it can, it is only because the lenders have sufficient confidence in the regulatory system to believe that a fair rate of return will be granted to the utility if applied for. Without such confidence, even Moody's bond ratings would be subject to such rapid revision as to throw the bond market into turmoil.*"

ing the utility under consideration to have a properly proportioned capital structure:

(1) A "fair" rate of return should never be lower than that required to produce a return sufficient to cover the capital costs of the business.

The circumstance here assumed to be present which might give rise to a contention that the "fair" rate of return should be lower than the capital costs of the business, is one wherein the capital costs already incurred by the utility under consideration are greater than the estimated current capital costs of replacing the entire existing capital of the utility. It would be at this point, in the writer's opinion, that the "end-result" concept enunciated in the Hope decision of the Supreme Court would have application, in testing the reasonableness of a "fair" rate of return independently determined on the basis of market criteria pertaining to securities of comparable investment grade of other utilities in the same or a relatively comparable utility industry.

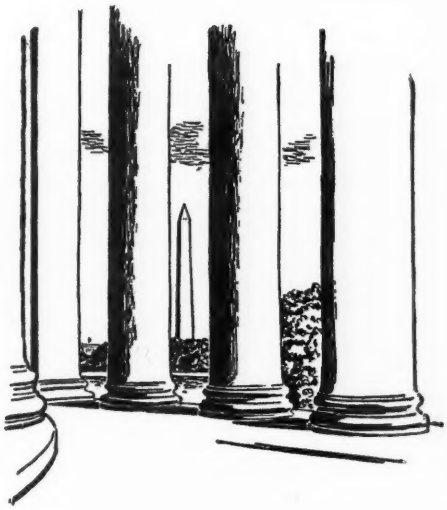
Such reasonableness, in the writer's opinion, can best be determined by applying the independently determined "fair" rate of return to the predetermined rate base of the utility under consideration, subtracting from such dollar amount the annual requirements for interest on debt and dividends on preferred stock, and comparing the remainder available for the common stock equity with one's predetermined judgments with respect to the amount of appropriate common stock dividends and the appropriate common stock dividend pay-out ratio.

(2) On the other hand, it is conceivable that a "fair" rate of return should be higher than that sufficient to cover the capital costs of the business, in the event that the estimated capital costs of replacing the entire capital of the utility under consideration are greater than the capital charge resting upon the utility at the time of the rate hearing.

FINALLY, it would be well, perhaps, to append the qualification that in arriving at a "fair" rate of return from the standpoint of market criteria pertaining to securities of comparable investment grade of utilities in the same or a relatively comparable utility industry, consideration should be given to the nature of conditions in the money market, in order that the conclusions reached be not affected by conditions which in no way can be regarded as "normal," such as those which existed in the 1929 era.

As to the validity of earnings-price and dividends-price ratios on the common stocks of utilities selected for comparison with the utility under consideration in a given situation, it would seem to be apparent that spot determinations of applicable ratios for comparative purposes would have little or no reliability as a measure for the determination of the currently estimated cost of common stock equity capital. But when these evidences of investors' demand for return on common stock equity securities are averaged over as long a period as ten years prior to the rate hearing, the resulting averages, it would seem to the writer, have attained a degree of reliability to which the criticisms leveled at spot determinations are not applicable.

Washington and the Utilities



Relocation Seems Assured

On April 27th the House of Representatives finally got down to the business of voting on the administration's $51.5 billion federal-aid highway authorization bill. A similar bill, calling for a greatly reduced highway building program, had already passed the Senate. But public utilities generally were greatly concerned with the inclusion of a provision for the reimbursement of utilities for the cost of relocating facilities due to federal highway construction.

The House finally agreed by a voice vote to an amendment calling for relocation reimbursement under a form slightly modified in favor of states' rights. The language of that section of the bill (HR 10,860) covering this matter—as approved by the House—is as follows:

Section 113 Relocation of Utility Facilities

(a) Availability of Federal Funds for Reimbursement to States.—Subject to the conditions contained in this section, whenever a state shall pay for the cost of relocation of utility facilities necessitated by the construction of a project on the federal-aid primary or secondary systems or on the interstate system, including extensions thereof within urban areas, federal funds may be used to reimburse the state for such cost in the same proportion as federal funds are expended on the project. Provided, That federal funds shall not be apportioned under this section when the payment to the utility violates the law of the state or violates a legal contract between the utility and the state.

(b) Utility Defined.—For the purposes of this section, the term "utility" shall include publicly, privately, and cooperatively owned utilities.

(c) Cost of Relocation Defined.—For the purposes of this section, the term "cost of relocation" shall include the entire amount paid by such utility properly attributable to such relocation after deducting therefrom any increase in the value of the new facility and any salvage value derived from the old facility.

Before passing the bill, however, the House defeated by a voice vote one amendment which would have deleted the utility section altogether and another

amendment which would have limited the federal contribution to 50 per cent of the cost of relocation.

Approval of the bill by the House in this form virtually assures eventual adoption of some substantial reimbursement features in whatever highway legislation is finally approved by the full Congress and the President. The Senate now must hold additional committee hearings on new authorization and tax provisions contained in the bill as passed by the House. It may not get to a final vote on highway legislation until mid-June.

Senator Gore (Democrat, Tennessee) has predicted that the Senate, after hearings and debate, will eventually readopt his bill, thus throwing the whole measure into a Senate-House conference. That would give the conferees the choice of two utility reimbursement arrangements. But, in any event, there is little likelihood that it would be dropped entirely as the House voted to do last year. The Gore (Senate) Bill authorizes the use of federal funds to reimburse utilities for up to 50 per cent of relocation costs, where that does not exceed 2 per cent of the cost of the project and where no state funds are used for such purposes.

"Now or Never"

THE most important aspect of the effort to obtain relocation relief for all public utilities, both privately owned and publicly owned, as well as the co-operatives engaged in the utility business, was the matter of timing. The utilities have good reason to remember the cumulative effect which a legislative policy, once written into a basic organic statute, can have upon subsequent extensions, amendments, or amplifications of such a statute. The Reclamation Act of 1906 contained but a germ accidentally implanted favoring sale of federal power to public agencies. Through the years it has become reinforced in a series of enactments until it has blossomed into the present "preference clause" definitely requiring an absolute priority of public agencies in the sale of public power.

Likewise, if the Federal Highway Act had failed to make allowance for reimbursement to the utilities for relocation expenses—especially after committees had recommended the same—such very negative action would have executed a strongly prohibitive influence against further attempts to obtain reimbursement for relocation expenses by statutory amendment. As a matter of fact, it was generally recognized that any attempt to secure relief for relocation expenses by special legislation subsequently introduced would face a very difficult passage in any Congress.

And so it was with a "now-or-never" spirit that both publicly and privately owned utilities of all kinds, supported by the National Association of Railroad and Utilities Commissioners, pleaded with the Congressmen to keep the federal highway building program from becoming a direct burden on the utility consumer. In their view, the cost of relocating utility facilities is just as much a cost of highway building as the cost of right of way, concrete, or materials or services. And when gas, electric, and telephone users have to pay for such expenses on their monthly bills, they are being required to subsidize the automobile and truck users of the new highway.

Gas Bill Agreement Sought

FPC Chairman Kuykendall is seeking broad industry co-operation and agreement on regulatory problems. He told a recent gathering of the Texas Independent Producers and Royalty Owners that producers should try to work out contract

price arrangements (without favored nation clauses) that would satisfy pipelines and distributors, as well as producers. He suggested that Congress and the President would no longer approve any bill backed only by producers, or tolerate certain forms of escalation contracts which FPC has already moved to eliminate by administrative action. The commission chairman did, however, warn his audience that even a weighted average field price approach could become a dead end if it operated to freeze prices at existing levels.

At a subsequent meeting in Los Angeles of the Independent Petroleum Association of America, Chairman Kuykendall further urged the producers to demonstrate the incompatibility of strict utility cost base methods, as applied to producer rate regulation, by submitting evidence of the same which could be tested in the courts. (See, also, page 770.)

TIPRO subsequently recommended adoption of forms of market proration as a possible alternative to FPC control over wellhead prices. As conceived by William J. Murray, Jr., chairman of the Texas Railroad Commission, state proration orders, such as were once used to set oil production, would allocate to producers in a field a pro rata share in the market.

PRODUCERS have not yet responded formally to various points suggested during the Practising Law Institute symposium on gas matters held in New York city early in April, as a basis for compromising differences between producers and distributors. Under these proposals generally, the FPC would be empowered to regulate producer sales in interstate commerce on a "fair commodity price" basis. In determining this price, the commission would abandon traditional original cost rate base techniques entirely and take a special kind of weighted average field price approach. The ultimate charge, or fair commodity price, in each case would have to be declared by the commission to be a fair end result for consumers, distributors, pipelines, and producers alike.

Army Engineers' Power Projects

HYDROELECTRIC power production facilities installed at civil works projects of the Army Engineers passed the 4,000,000-kilowatt mark, according to the Department of the Army. The new mark was reached early this month when the twelfth unit of 70,000 kilowatts went into production at McNary dam on the Columbia river (Oregon-Washington). McNary will ultimately have 980,000 kilowatts. There are now 25 civil works projects of the Corps of Engineers producing hydroelectric power. The 25 projects, primarily designed for flood control or navigation, but with a total installed capacity of 4,025,400 kilowatts, are as shown in table below.

Albeni Falls, Ida.	42,600	Fort Randall, S. D.	320,000
Allatoona, Ga.	74,000	Garrison, N. D.	160,000
Blakely Mountain, Ark.	75,000	John H. Kerr, N. C.-Va.	204,000
Bonneville, Ore.-Wash.	518,400	Lookout Point, Ore.	135,000
Bull Shoals, Ark.-Mo.	160,000	McNary, Ore.-Wash.	840,000
Center Hill, Tenn.	135,000	Narrows, Ark.	17,000
Chief Joseph, Wash.	256,000	Norfork, Ark.-Mo.	70,000
Clark Hill, Ga.-S. C.	280,000	Philpott, Va.	14,000
Dale Hollow, Tenn.	54,000	St. Marys River, Mich.	18,400
Denison, Okla.-Tex.	70,000	Tenkiller Ferry, Okla.	34,000
Detroit, Ore.	118,000	Whitney, Tex.	30,000
Fort Gibson, Okla.	45,000	Wolf Creek, Ky.	270,000
Fort Peck, Mont.	85,000		

Wire and Wireless Communication

Wage-hour Hearings

On May 8th Senator Douglas (Democrat, Illinois) carried out a promise he had made earlier in the year that hearings would be held on the exemption provisions of the Fair Labor Standards Act. Senator Douglas heads the Wage-hour Subcommittee of the Senate Labor and Public Welfare Committee. Among the exemption provisions which labor unions are seeking to have repealed is a special amendment to the law which exempts switchboard operators' wages at exchanges of less than 750 stations from the minimum hourly wage standard.

The small independent telephone companies are resisting any change in the exemption which would tend to increase payroll burdens. The Communications Workers of America, on the other hand, are vigorously urging elimination of the small exchange telephone operators' minimum wage exemption.

Politically, both major parties are on record as favoring extending the over-all coverage of the wage-hour law. Only last January, President Eisenhower requested that the Congress broaden the coverage of the Fair Labor Standards Act and pledged the "full resources of the executive branch to assist the Congress in finding ways to attain this goal." The President's remarks were not known to be directed to any particular form of exemption.

The wage-hour division of the Labor Department has estimated that about six and one-half million workers are not covered by the present act and that almost half of these are agricultural workers.

First witnesses at the hearings were government and labor witnesses testifying in favor of removing the exemption. Opposition witnesses for the small independent telephone companies were expected to stress the small-town nature of the independent telephone business and the different economic conditions in small towns as compared with large metropolitan areas.

The small independent telephone exchanges are very often the only business in smaller communities which is engaged in interstate commerce, subject to the wage-hour law at all. Smaller companies insist that subscriber rate increases would have to be made if the switchboard operators' exemption is repealed. Such service, in many cases, is subscribed to by farmers and others in rural and semirural communities already suffering from low cash income, compared with the other segments of the national economy.

Observers rated the chances of Senate

subcommittee action to remove the telephone operator amendment as favorable. Similar action in the House of Representatives, however, faced an indifferent House Committee on Education and Labor, headed by Representative Barden (Democrat, North Carolina). The chairman of the House committee has no plans for holding hearings on such legislation and probably will not do so unless more pressure is brought to bear. Unless the House committee soon makes a move in this direction, it is unlikely that final legislation can be enacted at this session, even though the Senate should act favorably before the summer recess.

Contribution Accounting

By a close division of 4 to 3 the Federal Communications Commission turned down the request of the telephone and telegraph companies (including Bell system and major independent companies, as well as Western Union Telegraph Company) for a change in the accounting rules covering the reporting of charitable and other contributions. Specifically, these communications companies wanted the rules changed so that they could charge contributions, membership fees, etc., to the operating expense account, "Other Expense" (Account 675), or to the appropriate operating departmental expense accounts, if directly related thereto, rather than to the "below-the-line" account, "Miscellaneous Income Charges" (Account 323), as currently required.

Eleven state regulatory agencies responded to the Notice of Proposed Rule Making in the proceeding; namely, those of the states of California, Kentucky, Louisiana, Michigan, New Jersey, New York, North Carolina, Pennsylvania, Washington, West Virginia, and Wisconsin.

All the regulatory agencies from these states opposed amendment of the accounting rules to permit the telephone companies to charge the cost of contributions and memberships to operating expenses, except the Washington commission which favored an amendment permitting such items to be charged to a single operating expense account. The majority of the FCC stated:

> We believe our accounting rules should facilitate expeditious rate proceedings, in so far as possible, and should not impose upon the commission, to the possible detriment of the ratepayers, the burden of ferreting out doubtful or improper items from the accounts. Our current accounting rules are conducive to a rate case procedure whereby each contribution and membership item, currently charged "below-the-line," can be advanced by the carrier as properly includable in operating expenses, and such inclusion therein can be supported by pertinent evidence and argument (the latter might well include nearly every contention contained in the comments of the proponents of the proposed rule revision).

Chairman McConnaughey and Commissioners Hyde and Doerfer dissented to the commission's order. In a dissenting statement, Commissioner Doerfer stated in part:

> Charitable contributions by present-day standards are legitimate costs of conducting a business. These costs should be treated in common carrier accounting accordingly . . .
>
> Although operated under regulation, common carriers still operate in this country within the framework of the free enterprise system. This system permits management a wide discretion in determining what expenditures aid

in the successful as well as efficient operation of its enterprise.

The power to regulate rates of return, service rates, standards of service, and rejection of improvident expenditures does not warrant what amounts to an officious intermeddling into managerial discretion of expenditures reasonable in amount and purpose for local charitable organizations.

Commissioner Doerfer failed to see why any difference of opinion as to classification of such items for rate-making purposes should be a valid argument against orderly accounting practices which have become normal routines with nonutility business enterprise. He pointed out that for many years such expenditures have been recognized by the federal government as proper deductions for tax purposes of all business corporations. He observed that in 19 recent rate cases such expenses have been allowed as revenue deductions, and disallowed in only six cases, with a court reversal in one of the latter cases. The expiration of the term of FCC Commissioner Webster next June gives rise to speculation that the narrow majority on this question might eventually be reversed.

New York Rate Rise Sought

On May 4th the New York Telephone Company asked the public service commission to authorize a $15,759,000 increase in rates. According to Keith S. McHugh, president of the company, approval would not involve any increase in telephone rates for public booth calls, long-distance calls, or residential or business extension telephones.

The company based its request on increases in two major expenditures. It said it needed $13,269,000 a year to meet wage increases negotiated for employees in New York state and $2,490,000 extra required by the Federal Communications Commission to be set aside as a higher depreciation allowance. Staff experts of the commission went to work on the company's request as soon as it was received.

In submitting the request, the telephone company emphasized that this move was not connected with its pending request for a $68,850,000 rate increase. This bid has been pending before the commission and the courts since November, 1953. The larger request is based on the entire financial structure of the utility, company officials said. The interim petition was designed to meet additional "out-of-pocket" expenses incurred over and above normal operations.

The telephone company based its $15,759,000 request on remarks made by the commission in a decision handed down last December. At that time the state agency denied a request for a $34,000,000 "stop-gap" increase but awarded $8,000,000 in higher rates.

"If substantial increases in the company's items of cost occur in the near future, not adequately provided for in the proposed tariffs to be filed in accordance herewith, the proceeding may be reopened for proof of such changes," the commission said.

It was for a reopening of this order that the company petitioned more recently.

The request for a $68,850,000 increase was denied by the commission in August, 1954, and a request for a rehearing was denied. The company appealed these decisions in the courts and ultimately was rewarded by a ruling that the commission must look at the case again, taking new evidence into consideration. The company has insisted throughout that it was entitled to a fair return on the value of its plant as measured by the cost of replacing it today.

Financial News and Comment

By OWEN ELY

Green Light on Atomic Power?

THE Atomic Energy Commission has finally given Commonwealth Edison and Consolidated Edison of New York permits for the construction of their proposed power reactors, and has allocated special nuclear material to be made available over a 40-year period for use as reactor fuel. It is estimated that Commonwealth will require 8,323 kilograms of U-235 and Consolidated 5,699 kilograms. The Commonwealth Edison plant (50 miles southwest of Chicago), to be constructed by General Electric, will have a generating capacity of 180,000 kilowatts and will cost an estimated $45,000,000. Consolidated Edison's plant (24 miles north of New York city), to be built by Babcock & Wilcox, will cost about $55,000,000 and is expected to generate 236,000 kilowatts, of which, however, 96,000 kilowatts will be produced by using an oil-fired superheater. Both plants are scheduled to be completed by about October 1, 1960.

The so-called "permits" do not constitute a license to operate, however. While the AEC feels that the two companies have submitted sufficient information to give reasonable assurance that the properties can be operated without undue risk to the health and safety of the public, nevertheless a "Hazards Summary Report" must be prepared by each company. This report is designed to anticipate all possible ways in which radioactive fission products might accidentally be released, work out steps to keep these things from happening, and estimate the consequences to life and property if an accident does occur. However, the commission has presumably decided, in view of the mounting pressure to get reactor construction under way, that safety methods can be given final appraisal while construction work is under way. It is possible also that government aid is anticipated over the near-term future with respect to "disaster" insurance coverage, in addition to that which private insurance companies are willing to give.

IT has been apparent for some time that proponents of public power are trying

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to get a foothold in the atomic power division of the utility industry, by sponsoring smaller reactor projects. Only one of the large nuclear plants has been proposed by a public power agency—the 75,000-kilowatt unit projected by Consumers Public Power District. However, a number of smaller plants have now been proposed by co-ops, municipalities, etc., as listed in the table on page 759. It will be noted that plant costs for these projects are very high, ranging from $281 to $820, as compared with $220 to $540 for the big projects. The cost for the Army-package power reactor (only 2,000 kilowatts) has been estimated by the AEC at $960 per kilowatt.

LOUIS H. RODDIS, deputy director of the AEC Division of Reactor Development, recently addressed the American Public Power Association convention at its "Atomic Power Workshop Session" in Los Angeles, on the possibilities of developing economic small power reactors. He stated that no one can make any accurate estimate of the cost of generating atomic power, since "all predictions made now about the cost of electricity produced from nuclear fuel are based on life expectancy estimates of widely varying degrees of validity."

However, apparently in order to hold out some hopes that the smaller atomic reactors might prove practicable, he prepared some rather novel cost estimates under the heading "A One-time Total-cost Approach." Thus he estimated that the cost of a large steam unit, including all fuel operation and maintenance cost for the entire life of the plant, would equal $700 per kilowatt, and for small steam plants and diesels as high as $1,200-$1,700. He then compared this with the *first cost only* of nuclear plants, ranging from $220 to $960, but made no effort to add to construction cost the lifetime cost of fuel, operation, and maintenance for the atomic plants. Despite the fact that the two sets of figures were obviously non-comparable, he concluded "it encourages me to find that the first cost of nuclear plants, by and large, appears to be getting down under the total cost for conventional plants. In this respect the data are particularly encouraging for the small plant range."

THIS sentiment may have been suited to the occasion, but could hardly be justified by the data presented. While admittedly the cost of atomic fuel is considerably less than that of fossil fuel, nevertheless other operating costs may run considerably higher than for steam-generating plants because of the numerous technical and safety problems involved. And the small plants proposed by the public power agencies would be under a handicap due to their high initial construction costs, though these might be partially offset by lower capital-return costs due to tax-free financing.

Both of the two big utilities which are now permitted to go ahead with construction plans have stated that they hope to be able to compete with coal-burning plants in their respective areas, as to over-all operating costs. From estimates presented by General Electric, we assume that the plant which it will construct for Commonwealth Edison, when operating at a high load factor, should be able to produce electricity at a cost competitive with coal-burning plants—probably in the neighborhood of seven mills. Consolidated Edison's plant to be constructed by Babcock & Wilcox is expected to operate at a thermal efficiency "comparable to that of large new conventional plants," and an estimate of nine mills operating cost has been mentioned unofficially.

The April bulletin of the Edison Electric Institute contains an excellent article

"SECOND ROUND" ATOMIC POWER REACTORS - PROPOSED FEATURES

	Chugach Electric Association	Wolverine Electric Cooperative	University of Florida	City of Orlando, Florida	Rural Cooperative Power Ass'n.	City of Piqua, Ohio	City of Holyoke, Mass.
Location	Anchorage, Alaska	Hersey, Michigan	Gainesville, Florida	Orlando, Florida	Elk River, Minnesota	Piqua, Ohio	Holyoke, Massachusetts
Type of Reactor	Sodium-Cooled Heavy Water Mod.	Aqueous Homogeneous	Pressurized Water	Liq. Metal Fuel Th. Br. Blanket	Boiling Water	Organic Moderated	Gas-Cooled Closed Cycle
Thermal Power	40,000 Kw	31,000 Kw[5]	10,000 Kw		58,000 Kw	45,500 Kw	44,000 Kw
Gross Electrical Gen. Capacity	10,000 Kw	10,000 Kw	2,000 Kw	25,000-40,000 Kw	22,000 Kw	12,500 Kw	15,000 Kw
Amount of Fuel Per Loading	10,000 Kg U	12 Kg	Not specified	60 Kg U-235 17,000 lbs Th.	12 Kg Enriched 10,000 Kg Normal	6,300 Kg	70 Kg
Enrichment Percent U-235	Approx. 2%	Fully Enriched	30 - 40%	Fully Enriched	Fully Enriched Spikes-Nat.U Core	3%	5%
Moderator	Heavy Water	Uranyl Sulfate in Heavy Water	H_2O	Graphite	H_2O	Hydrocarbon	Unknown
Coolant	Liquid Sodium		H_2O	U-235 in Molten Bismuth Sol.	H_2O	Hydrocarbon	Nitrogen Gas
Reactor Temp.[7]	950° F	570° F	450° F	Not specified	533° F	617° F	1292° F[6]
Reactor Pressure	Atmospheric	2000 Psig	1200 Psig	Not specified	900 Psig	30 Psig	515.7 Psia
Steam Conditions	850 Psig 850° F	600 Psia[2] 486° F	200 Psig 407° F	1250 Psig 900° F	600 Psig 825° F	410 Psig 550° F	Not specified
Est.Cost of Reactor[8]	$5,500,000[1]	$2,486,000	$1,400,000	$12,500,000	$3,760,000	$3,340,000	$2,400,000
Estimated Cost of Turbo-Gen. Plant	$1,850,000	$1,088,000	$ 200,000[3]	$ 8,000,000	$2,425,000	$1,960,000	$4,028,000
Total Est.Plant Cost	$7,350,000	$3,574,000	$1,600,000[4]	$20,500,000	$6,185,000	$5,300,000	$6,428,000
Cost Per KW	$735	$357	$800	$512 - $820	$281	$424	$429
Est. Completion Date	1961	1959	1959	1960	1960	1960	1960

[1]Does not include design cost. [2]Steam from heat exchanger to gas-fired superheater which delivers steam at 565 psia at 825° F.
[3]Does not include building cost. [4]Subject to change. [5]Includes superheater = 15,300 Kw thermal. [6]Maximum gas temperature at the reactor outlet or turbine inlet. [7]Average temperature in reactor. [8]Does not include research and development.

Source, Atomic Energy Commission

of fuel, operation, and maintenance for on the "Present Status of Atomic Power" by Walker A. Cisler, president of Detroit Edison Company. The address delivered by Dr. Willard F. Libby, AEC commissioner, before a City College group in New York city on April 27th, is also of interest. Pages 11-13 describe the three basic types of atomic power plants.

Utility Interest in Development Of Solar Energy

THE utility industry is interested in the development of solar energy—not so much as a competitive form of power but as a supplementary device which might well be employed along with electricity in air conditioning, etc. Arizona Public Service Company is a member of the Rocky Mountain Nuclear Power Study Group and the Association for Applied Solar Energy. "We are continuing our participation in studies of practical applications of nuclear, solar, and all forms of energy," said President Lucking, "and will continue to keep abreast of new technological developments that may be of value to our company."

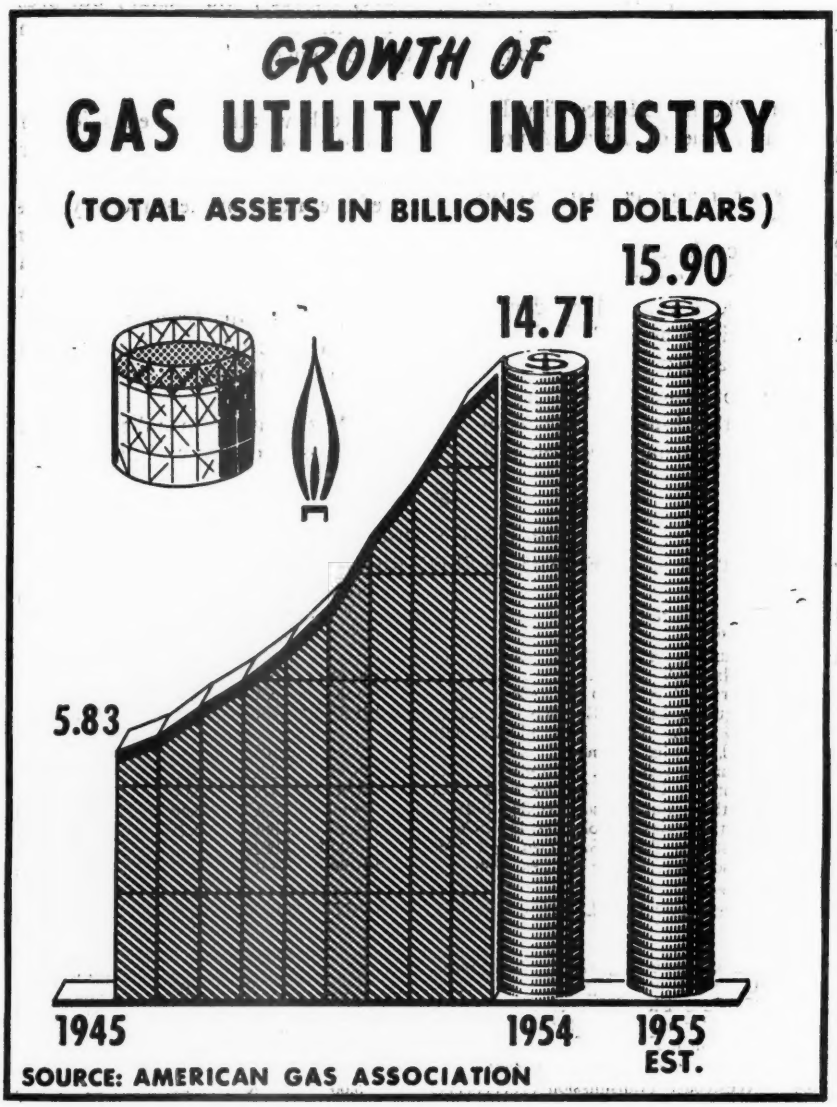
The proceedings of the "World Symposium on Applied Solar Energy," held at Phoenix, Arizona, last November, have been published in book form and are available through the Stanford Research Institute at Menlo Park, California. Ninety-six papers were presented on technical and scientific aspects of solar energy and the conference was attended by some 900 scientists and representatives of industry, finance, government, and education, including delegates from 37 countries. The solar Engineering Exhibit, which included many working models of solar devices, was attended by nearly 30,000 persons and received considerable publicity in the newspapers.

IN his address on "The Economics of Solar Energy," J. E. Hobson, of the Stanford Research Institute, stated that scientists in at least 25 countries have experiments in progress. Methods of converting sunlight into heat may be divided into three categories: (1) low temperature heat obtained with flat plate collectors, which is useful for space and water heating, low temperature pumps, and distilling devices; (2) temperatures up to 1,000° are easily obtainable with concentrating collectors, for use in steam generators, cookers, and low-temperature furnaces; and (3) temperatures of between 1,000° and 3,500° can be generated with parabolic concentrators and can be used for industrial and research purposes.

A second group of research programs pertain to conversion of sunlight directly into electricity, as exemplified by the solar battery now being tested at a telephone repeater station in Georgia. The third group would be the chemical processes, such as separation of water into oxygen and hydrogen, research into photosynthesis and plant life, etc.—including the effort to find a practical culture of algae as a cheap source of food.

Most existing solar equipment combines high initial investment cost with low operating cost. A solar energy device is therefore comparable to a hydroelectric plant in that the major cost is the initial one. Solar energy differs in that neither the source of the energy nor the energy itself has to be transported; but of course the energy, in the form of heat, must be locally used. With electricity the cost of transporting the coal and later the cost of transporting the electricity itself account for a high percentage of total cost, particularly in isolated areas.

THE cost of energy may vary widely, of course, from one section to another, depending upon the economic setup.



THE gas utility industry, one of the largest industries in the United States, is continuing its rapid growth. Its assets have almost tripled in the past decade. Its plant is expanding by more than a billion dollars annually. Last year, more than a million new customers were added, making a grand total of more than 29 million utility customers using gas.

Eighteen cities throughout the world where solar energy might have some immediate economic possibilities were studied. These were in an area between the two fortieth parallels, including Tokyo, Manila, New Delhi, Athens, Rome, Cairo, Dakar, Lisbon, Phoenix, Mexico City, Rio de Janeiro, and Buenos Aires. Among these cities there is a wide variation in current prices for energy; bottled gas costs $10 per million Btu's in Dakar *versus* less than $2 in Buenos Aires. Kerosene costs nearly twelve times as much in Rome as it does in Mexico City, and residential electricity is ten times as costly in Dakar as it is in Rio de Janeiro.

Mr. Hobson presented a number of charts reflecting this kind of data, comparing the cost of solar power *versus* residential electricity. Solar power had the advantage only in the Orient (New Delhi, Cairo, Nairobi, and Dakar) but presumably with further development might be able to compete in some other areas. Mr. Hobson concluded:

> We have already means for financing the sale of many consumer durable goods such as homes, automobiles, and refrigerators. In the same way we shall have to finance the sale of solar pumps, solar cookers, and solar house-heating installations. As they become technically and economically feasible, industry will be able to produce, sell, and use them in great quantities.

"THE Heat Pump and Solar Energy" was discussed by Philip Sporn and

APRIL UTILITY FINANCING

PRINCIPAL PUBLIC OFFERINGS OF ELECTRIC AND GAS UTILITY SECURITIES

Date	*Amount*	*Description*	*Price To Public*	*Underwriting Spread*	*Offering Yield*	*Moody Rating*	*Indicated Success of Offering*
		Bonds					
4/4	$12.0	Columbus & So. Ohio Electric 1st 3⅜s 1986	102.74	.66C	3.60%	A	a
4/4	15.0	Florida P. & L. 1st 3⅜s 1986	101.00	.63C	3.57	A	a
4/5	20.0	Duquesne Lt. 1st 3⅛s 1986	101.87	.78C	3.40	Aaa	a
4/5	3.5	5¾% Sub. Notes 1962 (Units with 70,100 Shs. Common Stock)	53.50*	3.50N	—	—	a
4/11	40.0	Columbia Gas Deb. 3⅛s 1981	100.40	.88C	3.85	A	d
4/12	10.0	Kentucky Utilities 1st 3⅛s 1986	101.45	.91C	3.67	A	d
4/18	40.0	Southern Cal. Edison 1st 3⅛s 1981	99.11	.83C	3.68	Aa	b
4/20	3.4	Portland Gas & Coke 1st 4⅛s 1976	101.67	2.06C	4.25	Baa	a
4/24	20.5	Westcoast Trans. Sub. Deb. 5½% 1988	115.00**	4.00N	—	—	a
4/25	30.0	Wisc. Elec. Power 1st 3⅜s 1986	101.88	.84C	3.77	Aa	a
		Preferred Stocks					
4/11	12.0	Kansas City P. & L. 4.35% Pfd.	100.00	1.68N	4.35	—	a
						Earns.-Price Ratio	
		Common Stock—Offered by Subscription					
4/3	5.2	Central Illinois Light	51.50	N	5.05	7.2	g
4/9	2.1	El Paso Electric	37.00	N	4.86	6.6	h
4/20	13.3	New England Elec. System	16.00	.13C	6.25	7.8	i
4/25	13.3	Wisconsin Electric Power	28.75	—	5.57	7.9	j
		Common Stock—Offered to Public					
4/25	16.4	Westcoast Transmission	5.00	N	—	—	a

C—Competitive. N—Negotiated. *Offered in units of $50 debenture and one share of common stock. **Sold in units of $100 debenture and three shares of common stock. a—It is reported that the issue was well received. d—It is reported that the issue sold slowly. g—Offered on a 1-for-10 basis with unsubscribed stock offered to employees. h—Offered on a 1-for-15 basis with over-subscription privilege (not underwritten, dealer manager). i—Offered on a 1-for-12 basis with unsubscribed shares offered to employees. j—Offered to stockholders on a 1-for-10 basis with over-subscription privilege, and also to employees (not underwritten).

E. R. Ambrose, of American Gas & Electric Service Company, which has been experimenting with solar collector heat pumps since 1949. The conclusion was that the solar heat system "can have an appreciably higher co-efficient performance than systems using only outdoor air as the heat source." A paper on "Cooling with Solar Energy" was also presented. G. L. Pearson, of Bell Telephone Laboratories, gave a technical description of the solar battery.

Dr. Farrington Daniels emphasized that solar energy must not be considered as competing with electrical energy. It will be used initially in areas with limited or expensive fuel resources where it will compete against the cost of animal or human energy. Solar engines of 5-10 horsepower may be developed in the near future but they must be light, portable, simple to operate, and inexpensive. Solar cookers and air-conditioning equipment are, of course, greatly needed in the Orient. A cheap turbine might be useful if mass-produced.

Summarizing, solar energy is principally of interest in foreign countries, particularly in the "solar belt" between the two fortieth parallels, and might well fit into our program for economic aid to the underprivileged countries. It may eventually find some useful applications in this country.

Accelerated Depreciation

In the discussion of accelerated depreciation on pages 680 to 683 of the May 10th FORTNIGHTLY, statement was made that "some commissions, such as those in Pennsylvania and Oklahoma, ruled that for rate-making purposes only *actual* taxes should be used." The reference to the Oklahoma commission was erroneous, as that commission, in its 1955 decisions relating to Oklahoma Natural Gas and Public Service of Oklahoma, permitted normalization of both depreciation and taxes.

RECENT FINANCIAL DATA ON GAS UTILITY STOCKS

1955 Rev. (Mill.)			*5/2/56 Price About*	*Dividend Rate*	*Approx. Yield*	*Share Earnings* Current Period*	*% Increase*	*12 Mos. Ended*	*Price-Earns. Ratio*	*Div. Payout*	*Approx. Common Stock Equity*
		Pipelines									
$ 4	O	Alabama-Tenn. Nat. Gas	19	$ .80h	4.2%	$1.41	7%	Mar.	13.5	57%	37%
15	O	Commonwealth Nat. Gas	31	1.20	3.9	2.61	9	Dec.	11.9	46	45
14	O	East. Tenn. Nat. Gas	10	.60	6.0	.62	41	Dec.	16.1	97	14
48	S	Mississippi Riv. Fuel	33	1.40	4.2	2.02	15	Dec.	16.3	69	52
69	S	Southern Nat. Gas	36	1.80	5.0	2.70	68	Mar.	13.3	67	33
200	O	Tenn. Gas Trans.	29	1.40	4.8	1.76	35	Dec.	16.5	80	22
163	O	Texas East. Trans.	25	1.40	5.6	1.97	31	Dec.	12.6	71	23
68	O	Texas Gas Trans.	22	1.00	4.5	1.93	17	Mar.	11.4	52	27
75	O	Transcont. Gas P. L.	17	.90	5.3	1.21	17	Mar.	14.0	74	19
		Averages			4.8%				14.0	68%	
		Integrated Companies									
127	S	American Nat. Gas	65	$2.20	3.4%	$4.15	16%	Mar.	15.7	53%	35%
50	A	Arkansas-Louisiana Gas	19	1.00	5.3	1.03	145	Dec.	18.4	97	53
44	O	Colo. Interstate Gas	73	1.25	1.7	5.53	NC	Mar.	13.2	23	35
304	S	Columbia Gas System	15½	.90	5.8	1.36	28	Mar.	11.4	66	44
8	O	Commonwealth Gas	6½	(a)	4.0a	.26	D51	Dec.	—	—	72
10	A	Consol. Gas Util.	14	.75	5.4	1.36	52	Jan.	10.3	55	53
240	S	Consol. Nat. Gas	36	1.70	4.7	2.86	18	Dec.	12.6	59	70
178	S	El Paso Nat. Gas	49	2.00	4.1	3.09	68	Dec.	15.9	65	22
40	S	Equitable Gas	26	1.50	5.8	2.15	13	Mar.	12.1	70	32
15	O	Kansas-Nebr. Nat. Gas	35	1.60	4.6	2.38	83	Dec.	14.7	67	32
88	S	Lone Star Gas	32	1.60	5.0	2.44	29	Mar.	13.1	66	39

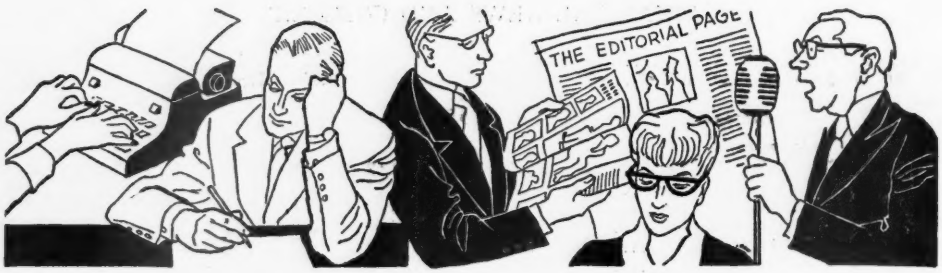
23	S	Montana-Dakota Util. ...	25	1.00	4.0	1.46	NC	Dec.	17.1	68	30
21	O	Mountain Fuel Supply ...	26	1.20	4.6	1.50	18	Dec.	17.3	80	59
72	S	National Fuel Gas	19	1.00	5.3	1.57	12	Dec.	12.1	64	58
108	S	Northern Nat. Gas	43	2.20	5.1	3.56	29	Dec.	12.1	62	34
37	S	Oklahoma Nat. Gas	26	1.40	5.4	2.20	39	Feb.	11.8	64	32
99	S	Panhandle East. P. L. ...	78	3.00	3.8	5.01	18	Dec.	15.6	60	32
11	O	Pennsylvania Gas	24	1.00	4.2	1.63	D10	Dec.	14.7	61	68
159	S	Peoples Gas Lt. & Coke .	149	8.00	5.4	11.40	15	Dec.	13.1	70	40
31	O	Southern Union Gas	22	1.12	5.1	1.69	28	Dec.	13.0	66	34
215	S	United Gas Corp.	30	1.50	5.0	2.03	D2	Dec.	14.8	74	41
		Averages			4.7%				14.0	65%	
		Retail Distributors									
23	A	Alabama Gas	33	$1.50	4.5%	$2.23	20%	Mar.	14.8	67%	44%
38	O	Atlanta Gas Light	27	1.20	4.4	2.11	23	Sept.	12.8	57	40
5	O	Berkshire Gas	15	.80	5.3	.97	111	June	15.5	82	37
4	O	Bridgeport Gas	27	1.50	5.6	2.17	26	Dec.	12.4	69	44
4	O	Brockton-Taunton Gas ..	14	.70	5.0	.85	30	Dec.	16.5	82	36
55	S	Brooklyn Union Gas	34	1.80	5.3	2.90	12	Mar.	11.7	62	47
1	O	Cascade Nat. Gas	11	—	—	Def.	—	Dec.	—	—	41
29	O	Central Elec. & Gas	16	.80	5.0	1.30	18	Sept.	12.3	62	16
11	O	Central Indiana Gas	14	.80(b)	5.7	.83	D18	Dec.	16.9	96	64
5	O	Chattanooga Gas	6	.30	5.0	.43	34	Feb.	14.0	70	43
61	O	Gas Service	24	1.36	5.7	1.85	—	Dec.	13.0	74	38
6	O	Hartford Gas	37	2.00	5.4	2.50	15	Mar.	14.7	80	52
2	O	Haverhill Gas	50	2.60	5.2	3.27	9	Dec.	15.3	80	55
15	O	Houston Nat. Gas	26	1.00	3.9	1.82	D12	July	14.3	55	23
16	O	Indiana Gas & Water ...	20	1.00	5.0	1.57	22	Mar.	12.7	64	47
6	A	Kings Co. Lighting	15	.90	6.0	1.12	D6	Dec.	13.4	80	28
40	S	Laclede Gas	16	.72	4.5	1.05	NC	Dec.	15.2	69	36
4	O	Michigan Gas Utils.	19	.90	4.7	1.31	5	Dec.	14.5	69	43
3	O	MidSouth Gas	12	—	—	.50	—	Dec. '54	24.0	—	30
37	O	Minneapolis Gas	25	1.30	5.2	1.64	9	Dec.	15.2	80	38
14	O	Mississippi Valley Gas ..	19	1.12(d)	5.9	1.80	29	Dec.	10.6	62	28
5	O	Mobile Gas Service	25	1.00	4.0	1.41	11	Mar.	17.7	71	33
7	O	New Haven Gas	30	1.60	5.3	2.39	7	Dec.	12.6	67	65
10	O	New Jersey Nat. Gas ...	23	1.20	5.2	1.90	19	Dec.	12.1	63	31
70	O	North. Illinois Gas	19	.80	4.2	1.37	17	Mar.	13.9	58	49
8	O	North Penn Gas	14	1.00	7.1	.83	D33	Dec.	16.9	120	57
183	S	Pacific Lighting	39	2.00	5.1	2.84	10	Mar.	13.7	70	44
15	O	Pioneer Natural Gas	26	1.32	5.1	1.89	10	Dec.	13.8	72	53
13	O	Portland Gas & Coke ...	33	1.00	3.0	2.04	49	Dec.	16.2	49	40
2	O	Portland Gas Light	11	.75	6.8	1.22	13	Dec.	9.0	61	25
8	A	Providence Gas	10¼	.56	5.3	.59	16	Dec.	17.8	95	64
3	A	Rio Grande Valley Gas ..	3	.15	5.0	.26	12	Dec.	11.5	58	63
3	O	South Atlantic Gas	12	.70	5.8	.88	D5	Dec. '54	13.6	80	32
9	O	South Jersey Gas	24	1.30	5.4	1.69	7	Dec.	14.2	77	52
24	S	United Gas Impr.	37	2.00	5.4	2.33	10	Mar.	15.9	86	64
33	S	Washington Gas Light ..	38	2.00	5.3	3.22	23	Mar.	11.8	62	42
6	O	Wash. Nat. Gas	14	.40	2.9	.65	D11	June	—	62	60
6	O	Western Kentucky Gas ..	18	.60	3.3	1.13	5	Sept.	15.9	53	38
		Averages			5.0%				14.4	72%	

RECENT FINANCIAL DATA ON TELEPHONE, TRANSIT, AND WATER STOCKS

1955 Rev. (Mill.)			*5/2/56 Price About*	*Dividend Rate*	*Approx. Yield*	*Share Earnings* Current Period*	*% Increase*	*12 Mos. Ended*	*Price-Earns. Ratio*	*Div. Payout*	*Approx. Common Stock Equity*
		Communications Companies									
		Bell System									
$5,297	S	Amer. T. & T. (Cons.) ..	182	$9.00	4.9%	$13.11**	8%	Feb.	13.9	69%	64%
220	A	Bell Tel. of Canada	49	2.00	4.1	2.43	5	Dec. '54	20.2	82	63
37	O	Cin. & Sub. Bell Tel.	90	4.50	5.0	5.16	26	Dec. '54	17.4	87	100
187	A	Mountain Sts. T. & T. ..	134	6.60	4.9	8.80	17	Feb.	15.2	75	78
285	A	New England T. & T.	138	8.00	5.8	8.89	35	Mar.	15.5	90	60

715	S	Pacific T. & T.	138	7.00	5.1	8.67	21	Feb.	15.9	81	58
89	O	So. New England Tel. ..	39	2.00	5.1	2.11	D5	Dec.	18.5	95	64
		Averages			5.0%				16.7	83%	
		Independents									
—	O	Anglo-Canadian Tel.	29	$ .60	2.1%	$1.59	43%	Dec. '54	18.2	38%	—
30	O	British Columbia Tel. ...	50	2.00	4.0	2.71	20	Dec. '54	18.5	74	34%
2	O	Calif. Interstate Tel.	13	.70	5.4	1.04	NC	Dec.	12.5	67	34
13	O	Calif. Water & Tel.	18	1.00	5.6	1.46	20	Dec.	12.3	68	42
12	O	Central Telephone	22	1.00	4.5	1.91	34	Sept.	11.5	52	23
3	O	Commonwealth Tel.	15	.80	5.3	1.12	67	Dec. '54	13.4	71	35
38	O	Continental Tel.	37	1.20	3.2	2.07	38	Dec.	17.9	58	23
3	O	Florida Telephone	20	.80	4.0	.88	10	Dec.	22.7	91	40
210	S	General Telephone	44	1.60	3.6	2.63	27	Dec.	16.7	61	34
5	O	Inter-Mountain Tel.	15	.80	5.3	.95	9	Dec.	15.8	84	55
19	S	Peninsular Tel.	39	1.80	4.6	2.38	19	Dec.	16.1	76	46
19	O	Rochester Tel.	20	1.00	5.0	1.45	48	Dec.	13.8	69	34
3	O	Southeastern Tel.	17	.90	5.3	1.36	43	Sept.	12.5	66	42
8	O	Southwestern States	20	1.12	5.6	1.37	31	Dec.	14.6	82	42
28	O	United Utilities	24	1.20	5.0	1.71	17	Dec.	14.0	70	31
1	O	West. Carolina Tel.	16	.70	4.4	1.18	17	Dec.	13.6	59	52
12	O	West Coast Tel.	19	1.00	5.3	1.37	24	Dec.	13.9	73	43
242	S	Western Union Tel.	21	1.00	4.8	2.10	39	Dec.	10.0	48	85
		Averages			4.6%				14.9	67%	
		Transit Companies									
22	O	Baltimore Transit	14	$1.60	11.4%	$1.27	120%	Dec.	11.0	126%	40%
13	O	Cincinnati Transit	5	.30	6.0	.34	16	Dec.	14.7	88	43
9	O	Dallas Transit	7	.35	5.0	1.10	21	Dec. '54	6.4	32	71
225	S	Greyhound Corp.	16	1.00	6.3	1.18	D12	Dec.	13.6	85	52
21	O	Los Angeles Transit	15	1.00	6.7	.94	D5	Dec.	16.0	106	89
27	S	Nat. City Lines	24	1.60	6.7	2.74	D1	Dec.	8.8	58	93
31	S	N. Y. City Omnibus	26	2.00	7.7	2.85	D3	Dec.	9.1	70	100
13	O	Niagara Frontier Trans. .	8½	.15	1.8	1.47	—	Dec.	5.8	10	78
70	O	Phila. Transit	15	.30	2.0	1.27	390	Dec.	11.8	24	42
7	O	Rochester Transit	5	.40	8.0	.44	D23	Dec. '54	11.4	91	38
23	O	St. Louis P. S.	13	1.40	10.8	.68	D15	Dec.	19.1	206	91
17	S	Twin City R. T.	16	1.60	10.0	Deficit	—	Dec. '54	—	—	43
22	O	United Transit	6	—	—	1.03	94	Dec.	5.8	—	48
		Averages			6.9%				11.1	81.4%	
		Water Companies									
		Holding Companies									
34	S	American Water Wks. ..	9	$ .50	5.6%	$ .97	10%	Dec.	9.3	52%	16%
		Operating Companies									
4	O	Bridgeport Hydraulic ...	30	$1.60	5.3%	$2.04	12%	Dec.	14.7	78%	57%
11	O	Calif. Water Service	44	2.20	5.0	2.75	15	Mar.	16.0	80	29
2	O	Elizabethtown Water ...	37	1.00	2.7	1.27	D5	Dec. '54	—	79	—
9	S	Hackensack Water	44	2.00	4.5	3.60	10	Dec.	12.2	56	37
7	O	Indianapolis Water A ...	40	.80	2.0	2.68	48	Dec. '54	14.9	30	33
5	O	Jamaica Water	37	2.00	5.4	2.90	—	Dec.	12.8	69	25
4	O	New Haven Water	58	3.00	5.2	3.32	D3	Dec.	17.5	90	63
2	O	Ohio Water Service	27	1.50	5.6	2.27	24	Dec.	11.9	66	38
7	O	Phila. & Sub. Water	32	.50(e)	1.6	2.20	11	Dec.	14.5	23	29
2	O	Plainfield Un. Water ...	64	3.00	4.7	4.00	8	Dec. '54	16.0	75	—
3	O	San Jose Water	48	2.00	4.2	3.34	6	Mar.	14.4	60	43
9	O	Scranton-Springbrook ...	19	.90	4.7	1.31	D2	Sept.	14.5	69	35
4	O	Southern Calif. Water ..	15	.80	5.3	1.08	27	Dec.	13.9	74	34
3	O	West Va. Water Serv. ..	29	1.40	4.8	1.55	14	Mar.	18.7	90	17
		Averages			4.4%				14.8	67%	

A—American Stock Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. *Earnings are calculated on present number of shares outstanding, except as otherwise indicated. **On average shares. (a)—Paid 4 per cent stock dividend. (b)—Paid 10 per cent stock dividend. (c)—Paid 5 per cent stock dividend. (d)—Paid 25 per cent stock dividend. (e)—Also paid 5 per cent stock dividend. (h)—Paid 25 per cent stock dividend. NC—Not comparable. NA—Not available.



What Others Think

Current Foreign Case Histories in Socialist Experiments

APPROPRIATELY, on May Day (May 1st) from a left-wing ideological standpoint, the Indian Prime Minister Jawaharlal Nehru announced a sweeping nationalization program under which the Indian government will control all future development of heavy industries and mining. These will, of course, include all public utility services. Nehru told his Parliament the program will reinforce and extend India's "social economic policy," first adopted eight years ago. He said this policy aims at a socialist pattern for society.

Nehru said his government would take over future undertakings in the iron and steel industries, coal and lignite mining, heavy electrical equipment, mineral oils, iron ore, manganese ore, and gold and diamond mining. At the same time, he said it also would assume development of the aircraft industries, air transport, shipbuilding, electricity, and telephones, telegraph, and radio apparatus. The Prime Minister also said the state would "progressively expand" into the fields of aluminum and other nonferrous metals, machine tools, fertilizers, basic chemicals, and highway and sea transport.

By way of restriction Nehru threw a rather questionable line to the right wing by emphasizing that private enterprise would be enabled to expand and develop where necessary, *with the financial help of the government.* Special aid will be given to operative lines, Nehru said, and private industries will have to adapt themselves to fit into the framework of the new "social economic" policy. He said, however, the government recognizes it would be "generally desirable" to allow private enterprise undertakings to develop with as much freedom as possible.

JUST how much or how little private enterprise or foreign capital will be interested in direct investment in India's industrial development under this forbidding atmosphere is not known. But the experience of other nations suggests that it will amount to little, and that Nehru has actually planned it that way. In other words, the socialist Prime Minister of India is keen for foreign aid, foreign investment, or foreign trade, provided, however, that the benefits are channeled to the Indian people via the government, with state controls governing the benefits in every case and in every detail.

One unfortunate aspect of Nehru's experiment, from the standpoint of American security interests, is that it plays directly into the hands of the exponents of communistic expansion. The very hostility of the Indian government to any substantial form of capitalistic enterprise sets up a barrier to closer bonds between India

and the West, while correspondingly lowering barriers (if any) to communist infiltration.

Obviously, no American investor in his right mind would want to risk a business dollar for irrevocable commitment in native Indian enterprise under such a setup. But the Russians and other communist nations care not a fig for the interposition of Nehru's so-called "neutralist government" between what investment they might care to make and their ultimate objectives. Capitalistic foreign investment is subject to local government. Communistic foreign investors infiltrate and take over local government. That is the important distinction which Nehru has yet to learn.

At the very dawning of this hopeful, new experiment in Socialism come other dispatches from other corners of the world signaling the results of other, equally hopeful, socialistic endeavors. They tell of other socializers who are today sadder and wiser men.

In Bolivia, for example, President Victor Paz Estenssoro has recently been giving nationalist politicians and leftist labor leaders of his own and other countries an important lesson in economics. According to a recent dispatch in the *Washington Daily News* by its Latin American correspondent, Edward Tomlinson, President Paz not only has declared, in effect, that nationalization of the tin mines has been financially disastrous, but that the mine laborers, chief supporters of his government, are responsible for the fiasco. "They worked harder for the private owners," he asserted, "than they did for the government."

Mr. Tomlinson reported that the leftist Bolivian dictator took over the country in a 1952 revolution, took immediate steps to confiscate the giant tin industry of the ancient Andean nation, and now, four years and an empty treasury later, he has been forced to admit the government operation of the vast enterprise has been a total failure.

Few people ever work hard for the government in Latin America, Mr. Tomlinson wrote. Bolivian workers, "of course," loafed on the job after the mines were nationalized, but they did not strike continually. He said they did not carry on a consistent campaign of sabotage against the operators, nor did they organize riots and wreak vengeance upon foreign engineers and their families, as they had been doing for years before the government took over.

The *Daily News* correspondent felt that it would be a bit unfair to blame poverty-stricken, illiterate Indians and cholos (half-breeds) for the mistakes in policy and lack of technical and engineering ability of higher-ups which brought misfortune to the country's most important enterprise. The workers listened to, and were pressured by, these leaders into supporting the nationalization scheme, he pointed out.

Mr. Tomlinson continued:

> The blame for what has happened rests squarely upon President Paz and his henchmen. He and they had preached confiscation for years. They embarked upon this latest Latin American economic misadventure in spite of the previous failure of nationalization and government operation of the oil industry.
>
> Be it said to his credit, Dr. Paz tried to do something about the oil situation, although in a somewhat underhanded way. He has turned that industry back to private enterprise to operate, but not to those from whom it had been taken. Acknowledgement that nationalization

of oil was a mistake did not include any thought for remuneration, or even open apology to those who originally spent millions to explore and discover that oil was there.

At any rate, in the closing weeks of his term of office, the Bolivian leader confesses he has learned that confiscation and nationalization of big private industry is a most unprofitable policy. His old companion in arms, Juan Lechin, big boss of the mine unions, has said nothing. It remains to be seen whether those who take office after Paz profit from his mistakes and his confession.

AND from Norway, by way of a report by Max Eastman, published in the *National Review* of April 18th, comes word of a retreat by socialist experimenters there. Mr. Eastman declared that this changing attitude is especially significant in that Norway has gone further in authoritarian state control than any other country this side of the Iron Curtain. The country has been, and still is, ruled by a centralized and disciplined Labor party which began openly, twenty-one years ago, to build a step-by-step managed economy.

The author stated that "Socialism" in Norway no longer means state ownership of the means of production, however. Ownership remains formally in private hands. But, in his words, "all the fun and most of the profit are taken out of it by comprehensive and meticulous state regulation and control."

The Norwegian socialist leaders call this "planning under the control of the nation," but it is significant, he added, that it is being put through by less than half of the nation. The Labor party won only 47 per cent of the votes in the last election, and wangled a parliamentary majority of only two. He noted, in this connection, however, that the party's discipline is such that it could rule the country with a majority of one.

While the party proposes to "safeguard personal liberty by means of a systematic management of society," in Mr. Eastman's view, the price-control law makes a mockery of the "personal liberty" pretense, unless businessmen are not regarded as persons.

THIS law, he remarked, gives to a state bureau—which means a single bureaucrat — practically unlimited control not only over prices but over profits, dividend payments, distribution, terms of delivery, quality of products, what can be sold or bought, or even whether a company may sell at all. The only actual limitation, he stated, lies in the fact that these decisions are, of course, "subject to review by the courts"—what is found to be a most costly and cumbersome procedure.

Mr. Eastman's report continued as follows:

> A man I know in Oslo who manufactures electric motors, transformers, and locomotives was losing money on his motors and applied for permission to increase the price from 207 kroner to 228. The price administrator admitted the loss but denied the increase because he was "making enough money out of transformers and locomotives." Subsequently a new competitor in Bergen got a permit to sell *his* motors at 300 kroner.
>
> When this discrepancy was pointed out, the price administrator set for both manufacturers a price of 220 kroner. This put the Bergen man out of business. Apparently it also disturbed the price administrator's conscience for, visiting the Oslo man again, he canceled the regulation on motors altogether! "Go it your own way," he said, but shook a warning finger in parting: "If

I find you're making too much money, I'll be around again."

"One hesitates to expand his business under such circumstances," the Oslo man said to me.

IN the author's opinion, one of the least "freedom-loving" traits of the Norwegian régime is a regulation empowering the government to make arbitrary "levies" on any business whose profits are deemed unreasonable. As this practice handicaps the most productive industries like whaling, mining, and shipping, to the advantage of unproductive, inefficient ones, it acts as a brake on the Norwegian economy, Mr. Eastman pointed out.

It is estimated, he declared, that at the peak during the postwar years more than 250,000 maximum prices were in force. There were ceiling prices for 741 different types of window frames. Mr. Eastman found that among the numerous "agents" required to enforce such laws were many who knew nothing about business and less about the materials they were appraising. Burly Vikings were to be seen measuring the size of begonia blossoms in florist shops, he said.

"Those mad days passed," Mr. Eastman stated, "but they accustomed the people to authoritarian regulations so extreme that the idea of a genuinely free market now seems fantastic." Nevertheless, he asserted, the socialistic experiment in Norway is at present traveling back toward private enterprise and a free-market economy. Without avowing it, the Labor government is, in a number of vital matters, retreating from its socialistic program.

A year ago, the author stated, it raised the legal discount rate—fixed "in perpetuity" in 1944 at 2½ per cent—to 3½ per cent. And that is only the formal aspect of the change Mr. Eastman described. On the "gray market," according to a recent newspaper dispatch, the rate may go as high as 8 and 9 per cent, and even respectable institutions issue loans at 5½ and 6½ per cent.

At the same time, he added, the government has begun to encourage private savings, which in its doctrinaire days were regarded as a menace. One of its most extreme measures, in the view of the author, was a law compelling large landholders to sell part of their farm or forest lands at the demand of small holders. The government soon learned, however, that big owners could operate the forest and farm industries better than small ones. This caused the law to be repealed as of January 1, 1956.

MR. EASTMAN found "a similar and stranger thing has happened to price control." Less than three years ago, he said, the present stringent law, a war emergency measure originally, was made permanent. But as soon as it was firmly fixed on the books the government began to stop enforcing it, he declared. In retail trade he found that it had faded more or less of its own free will. In other spheres, he remarked, the situation is now so confused that even lawyers cannot figure it out. On the other hand, latest developments would seem to indicate that the authorities are so worried about rising prices (due to inflation) that the Price Directorate is expected to start again to exercise its authority.

Mr. Eastman continued:

It is my hunch that the Norwegian Socialists are destined to prove conclusively what the experiment in England has left doubtful in many minds: that "democratic Socialism" is unworkable. Their effort is not impeded by any great rival party. They are not troubled by a division in the labor unions. The fishermen and the lumberjacks and a great

bloc of the small farmers support them to the limit. There can be no complaints or alibis if their experiment fails.

The author's opinion is that in the inevitable crises to come, Norwegians will choose "personal liberty" as against a "consistent planned economy."

In still another area of the world, in England, the recent outgrowth of Socialism and the welfare state has been a lottery, proposed by Chancellor of the Exchequer Macmillan as part of a plan to "restore, maintain, and develop . . . the habit of saving." The English socialist experiment on the one hand produced savage tax rates which have reduced the amounts available for saving and investment. On the other, welfare arrangements have lagely destroyed normal incentive to save. As Charles Curran of the London *Spectator* reported recently:

> . . . In the world of the New Estate . . . there is no compulsion on any household to make its own provisions for childbirth, or sickness, or education, or insurance, or unemployment, or retirement—since the state takes care of them all. . . .
>
> The traditional responsibilities of the husband and father are either drastically reduced or removed altogether. It is a world in which wages can be treated as not much more than pocket money—a cash surplus to be spent largely on pleasures, instead of being concentrated on necessities.

Mr. Curran did not regard the fact that England has begun to appeal to other motives for savings—now that welfarism has removed the old motives—with equanimity. In appealing to the gambling instinct, he said, the government has had to admit that the old-fashioned bourgeois incentives to thrift and saving—those "proud standards of fiscal sobriety" which were the bulwark of the country in an earlier day—have been abandoned and destroyed. He regretted, as do many of his countrymen, that Britain has had to resort to a lottery, as its most suitable alternative, at a crucial time in history when savings, in another kind of Britain, might otherwise have been available to boost capital formation and revitalize the industries on which the country has come to depend.

Such have been the developments in Socialism in Bolivia, Norway, and Great Britain directly preceding Prime Minister Nehru's announcement of planned, rapid expansion of government ownership and development in India.

—E.W.P.

FPC Chairman's Views on Gas Producer Control

It has consistently been maintained by members of the Federal Power Commission that solutions of the unprecedented legal and economic problems created by the Supreme Court's decision in the Phillips Petroleum Company Case can be found only after experience, experimentation, and study, and in the exchange of knowledge and ideas derived therefrom.

On two recent occasions, FPC Chairman Kuykendall has expressed, before producer gatherings, some current thoughts of his own which he hoped producers might find of some value, when coupled with the results of *their* experience, experimentation, and study. The commission chairman addressed a gathering of the Texas Independent Producers and Royalty Owners Association in Dallas in mid-April. Early in May, he spoke be-

fore the Independent Petroleum Association of America, which met in Los Angeles. Since both talks covered substantially the same ground, it is the latter presentation which is reviewed in these columns.

The problem of what standard to use in determining just and reasonable rates for independent producers is, to put it mildly, a difficult one, Chairman Kuykendall maintained at the outset, in his Los Angeles speech. The difficulties of the commission have not been lessened by the fact that some members of both houses of Congress and a few other persons still contend that FPC should fix producers' rates by the method it uses in fixing rates of an interstate pipeline company; namely, the allowance of a reasonable rate of return on the net investment in the facilities which are used and useful in rendering the service.

In amplification of this aspect of the situation, the FPC chairman stated:

> The Federal Power Commission realizes, and has stated, that the fact that, in a given case, the net investment of a producer, multiplied by some percentage figure, happens to produce a price for natural gas which appears to be reasonable, may be proof of nothing more than a coincidence. It is my own belief that many of the persons, who have argued that independent producers could be fairly and simply regulated by the traditional methods used in regulating public utilities, are now beginning to recede from that position.
>
> Nevertheless, the circuit court of appeals for the District of Columbia issued an opinion on December 15th, of last year, which, to say the least, has not simplified the situation. This opinion was rendered on an appeal from the commission's decision pertaining to the Panhandle Eastern Pipe Line Company . . . Panhandle is an interstate transmission company which also produces some of the gas it transports and sells. The court held that FPC could fix the price of Panhandle's own produced gas by some method other than the cost rate base method, but that, in so doing, the commission must first ascertain the rate base, and other costs, and use that information as the point of departure. There is disagreement among lawyers as to the applicability of this decision to independent producers. If it does apply to people like you, it means that the commission must make an original cost study of each producer's investment and operations before it could make a determination of just and reasonable rates for him. It is my personal hope that the Supreme Court will see fit to review this decision.

Chairman Kuykendall declared that the best way to demonstrate that the original cost rate base approach is not sound, fair, or usable as a sole standard, is to introduce the pertinent facts in the record in rate hearings before the FPC. If this were done, he stated, the examiner, the commission, and the courts could directly pass on the merits of the question, and an important regulatory question would thus ultimately be properly clarified. "Your reluctance to make public this information because it might be helpful to your competitors, or for any other reason, should not, I believe, cause you to lose sight of the legal problems confronting you, as well as the Federal Power Commission," he told his audience.

The gathering learned from further remarks of the speaker that the commission may be just about ready to decide whether cost evidence must be in the record to enable the commission to decide a

producer's rate case. Until that question is decided, Chairman Kuykendall said, "it does not appear to me that any producer may have much to gain by fortifying his record in a rate case with all evidence which may be required by law."

THE speaker then took up some of the alternatives to the traditional approach in utility rate cases which producers have felt would be more suitable ways of regulating producer-pipeline contracts. It has been contended, he said, that the commission should accept the prices in contracts made by arm's-length bargaining as the just and reasonable rates which the law requires. This procedure might be sensible, certainly expeditious, from the producer viewpoint, the FPC official admitted. In fact, however, it would, for all practical purposes, restore producers to the position they were in prior to the Phillips decision, he declared. "You would be rid of federal rate regulation, except for those few cases where the commission might find an absence of arm's-length bargaining. It seems clear that such a mode of regulation, or lack of regulation, would not be compliance with the Natural Gas Act," he asserted.

Nevertheless, proof of arm's-length bargaining, including evidence of the circumstances surrounding the transaction, seemed to the commission chairman to have "probative value." By the phrase "circumstances surrounding the transaction" he included information as to the urgency of the buyer's need for the gas, what other sources of supply, if any, were available, and what other offers of sale, if any, he had, together with corresponding infomation about the seller, so that the commission could determine whether or not there existed a willing buyer who did not have to buy, and a willing seller who did not have to sell.

ANOTHER contention which Chairman Kuykendall said producers have made is that the commission should simply approve a price which represents the going field price in the area. He noted that the commission has stated that evidence of field prices is admissible and helpful, but that such prices do not, of themselves, form a complete criterion for fixing producers' rates. "Suppose," he said, "that the commission fixed all producers' prices in a certain field or area at the weighted average price. If that same standard were adhered to in the future, the price, once fixed for all, could never be changed." The chairman explained that he assumed, of course, that all sales in the area are subject to FPC regulation in making the above analysis, but that in all important respects, he felt, the commission's conclusion that field prices do not constitute a complete regulatory criterion is an accurate appraisal of this type of approach.

The speaker next considered the part various types of escalation clauses have played in determining the price of gas. He said that favored nation clauses in producers' contracts had, prior to the Phillips decision, caused the Federal Power Commission to be almost overwhelmed with pipeline rate cases, and had likewise been a cause of increased consumers' rates in almost all communities served by natural gas. He said he believed that the need and desire of producers for fair prices during the life of long-term contracts are recognized by the transmission and distribution segments of the natural gas industry, and that he knew the FPC understands the problem of producers in this regard.

He wondered, however, if the producers, and particularly the smaller ones, appreciate the chaotic conditions which these clauses have created. The opponents of the Harris-Fulbright Bill, almost to a man, denounced these clauses and, Chair-

man Kuykendall felt, would continue to do so. He remarked that the FPC had criticized them, and that he personally had done so, and that he personally would not recede from anything he previously had said on that subject.

In fact, he said in this connection, on April 6, 1956, FPC issued notice of a proposed rule, which, if later adopted, would prohibit any new contracts containing such clauses from being filed with the commission on or after July 1st of this year. Noting that all interested parties may submit comments prior to June 1st, he suggested that, before members of the assembled association voiced a total opposition to this proposition, they should explore the possibility of other means of insuring fair prices for their product.

REGULATED industries, or public utilities, require, for successful operation, stability in their expenses and their rates, he explained. This he said does not mean that they should be exempt from proper increases in costs, "but it is highly desirable and almost imperative that they do not perpetually sustain violent and unforeseeable increases in costs of operations. Likewise, millions of consumers, whose incomes are closely budgeted, naturally resent and oppose large, sudden, and what seems to them unwarranted increases in their gas bill."

The commission chairman added:

> The Harris-Fulbright Bill in effect banned this type of escalation in existing contracts and authorized the commission to fix the reasonable market price in lieu of automatic recognition of the escalation. This measure also authorized the commission to approve the prices in new contracts. It is difficult to see how the commission could have approved new contracts with favored nation clauses in them, as all the prices, during the entire term of the contract, would not be ascertainable.
>
> In my opinion, it is not probable that Congress will, in the future, enact any measure which is any more tolerant of favored nation clauses than was the Harris-Fulbright Bill. Therefore, I recommend to you that you try to work out other contract price arrangements which will recognize not only your problem, but the problem of the pipeline and distributing companies as well.
>
> A number of representatives of distributing companies have, since the veto of the Harris-Fulbright Bill, expressed a sincere desire to arrive at a workable solution of the producers' problems. The distributing companies are concerned about your welfare because they require assurance of long-term supplies, and they make no secret of that fact. I am sure the time is ripe for fair-minded people in the three segments of the natural gas industry to confer with each other, and endeavor to reach agreement on solutions of the perplexing regulatory problems now confronting the producers. I am also confident that agreements so arrived at, in consideration of the public interest as well as enlightened self-interest, will be acceptable to and approved by the Congress and the President.

CHAIRMAN Kuykendall concluded his remarks by stating that the commission would continue to do what it properly could within its power and capacities to eliminate unnecessary paper work for producers, and would do what it could to clarify and answer questions in a proper way and at a proper time, after due process had been accorded all parties.

The March of Events

Operation Alert—1956

ELECTRIC companies and other utilities are pledged to join with civil defense authorities in testing their emergency mobilization plans during a national alert called for July 20-25, 1956. In some areas full-dress tests of electric power facilities under emergency conditions will be staged. For example, the southwestern and middle western region companies are reportedly already organized to keep power loads steady through a system of interconnections. These plans are being encouraged by the Interior Department. The Secretary of Interior is responsible for the development of a national plan for assuring the availability, during an emergency, of fuel and electric power for defense purposes.

Such responsibility for emergency restoration of power service in attack areas is Interior's under authority delegated by the Office of Defense Mobilization and Federal Civil Defense Administration with the approval of the President. Interior is responsible for co-ordinating the national program, and providing technical guidance to the states. While most major utilities have had their own plans for meeting disasters and have had crews trained to handle large-scale power service interruptions, recent Interior Department efforts have been pushing preparedness to meet situations of catastrophic proportions.

In the final analysis, Interior would be bound to see that any potential target area would receive power so that essential defense and defense-supporting activities could be continued or resumed. Co-operation among neighboring utility companies is being fostered by industry conferences. This program is well advanced at the present time.

In an actual emergency, some new form of "Defense Electric Power Administration" would be re-established. The plans for such an organization are in a stand-by status. DEPA, which existed during the Korean War, was a defense control subagency within Interior. Interior expects to make a public announcement of preparedness before the July civil defense exercises.

Arkansas

Asks Reconsideration of Case

IN asking reconsideration of its rate case by the state supreme court early this month, the Arkansas Power & Light Company said its rate of return was 5.01 per cent and not 5.58 per cent as claimed by the state public service commission.

In requesting a rehearing by the state supreme court, the company was reported to have taken the first step toward a possible appeal to the U. S. Supreme Court of the rate increase which was denied by the state commission and which was upheld by the Arkansas supreme court on April 16th.

In the petition for rehearing, the company viewed the record of the proceedings to show that it had not admitted a return of 5.58 per cent under rates charged before July 1, 1954. In its opinion the state supreme court said the company appeared to admit that its earnings had produced a 5.58 per cent rate of return.

Florida

Municipal Ownership Loses

IN a hotly contested election, the voters of Lake City rejected, by an almost 3-to-1 majority, a proposal that the city take over municipal ownership and operation of Florida Power & Light Company's electric service facilities. The proposal, estimated to cost $3,000,000 to $5,000,000, included construction of a city-owned diesel generating plant.

Advocates of the plan, confined principally to the city officials, waged an intensive campaign on the theory that a city-owned utility would pay no taxes and, therefore, would prove a good money-maker. Strong opposition was voiced by a citizens' committee of some sixty business and civic leaders who opposed it as a step toward socialization. Robert H. Fite, president and general manager of Florida Power & Light Company, hailed the election results as a resounding endorsement of the American free enterprise system.

Massachusetts

Gas Code Adopted

CHAIRMAN David M. Brackman of the state public utilities commission announced recently adoption of a safety code for gas transmission and pipeline systems, to which all gas utilities in Massachusetts will have to conform.

With some minor changes to meet local operating conditions, the code conforms with the American Standard Code for Gas Transmission and Distribution Pipeline Systems. It will affect all new construction and installations in Massachusetts.

Michigan

Whiting Retires

JUSTIN R. WHITING, widely known veteran utility executive, retired on May 1st as chairman of the board of directors of Consumers Power Company, Jackson, Michigan. His decision to terminate his long service as an officer of the company was accepted by the board at a meeting in Jackson on April 26th. Mr. Whiting will continue as a director and will also serve the company as a consultant. The office of chairman of the board will be left vacant, the duties being assumed by President Dan E. Karn, who was re-elected.

Mr. Whiting, a native of St. Clair, Michigan, was graduated from the law school of the University of Michigan and practiced law in Port Huron, Detroit, and Jackson for twenty-three years. In 1933, while serving as president of the Michigan Bar Association, he was called to New

York to become a partner in the law firm of Weadock and Whiting, counsel for The Commonwealth and Southern Corporation, which at that time held all the common stock of Consumers Power Company and all or most of the common stock in ten other electric and gas utility companies.

When Wendell L. Willkie resigned as president of Commonwealth and Southern in 1940, following his nomination for President of the United States, Mr. Whiting was elected to succeed him. He became president of Consumers Power Company at the same time. Mr. Whiting handled the many legal and financial problems leading up to the dissolution of Commonwealth and Southern in 1949. Since then he has devoted full time to the management of Consumers Power Company, first as president and later as chairman of the board.

Nebraska

No Immediate Public Power Session

GOVERNOR Anderson early this month announced he would not call a special session of the state legislature to deal with the public power problem except "as a last resort." Possibility of such a special session had been suggested by Ralph O. Canaday of Hastings, manager and counsel for the Central Nebraska (Tri-County) Public Power and Irrigation District.

Public power officials have been unable to arrange firm financing for a proposed 100,000-kilowatt electric generating plant south of Lexington. Most recent snag was word that the Rural Electrification Administration in Washington was holding up approval of a $17,000,000 loan to build the plant. It was explained that REA wants clarification of legal questions.

North Dakota

To Test State Law

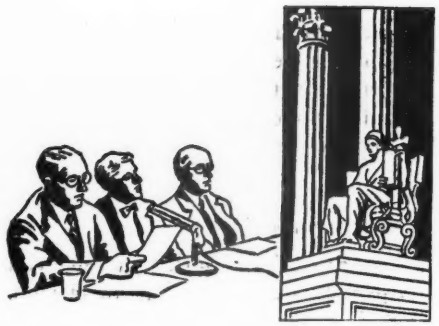
THE state public service commission has scheduled a hearing for May 28th in Bismarck with the ultimate purpose of testing the state certificate law regarding operation of public utilities. To be considered is the action of Montana-Dakota Utilities Company in constructing and operating a natural gas pipeline from Tioga to Minot without a prior certificate of public convenience and necessity being issued by the commission.

Public Service Commission President Martin Vaaler dissented from the commission's hearing order, which was approved by Commissioners Ernest Nelson and Anson Anderson. The commission majority's complaint alleges the utility started construction of the line without proper authority. In explaining his dissent, Vaaler said:

> It is my understanding that the legal issues of whether Montana-Dakota Utilities Company is or is not required to obtain a certificate to construct and operate a natural gas pipeline between Tioga and Minot is at issue now on appeal before the district court at Minot.

It was his feeling, he added, that the hearing was called to "harass" the company.

Nelson explained, however, it was the feeling of the commission's legal counsel that the appeal by Montana-Dakota at Minot, which involves all facets of pipeline operation, "is not a direct test of the powers of the commission and may not go to the root of the matter."



Progress of Regulation

Trends and Topics

Charging for Service to Officers and Employees

THE failure of a small utility to charge the company president for electricity supplied to his chicken coops, although a relatively unimportant local matter, presented to the Utah commission questions which have confronted other commissions. This officer pointed to the fact that he rendered various services and charged less than he might if he did not receive electric lighting without paying for it in the usual way. The commission noted that under state law, service could be supplied to officers and employees free for domestic use, but ruled against free service for commercial use. It did not approve of the offsetting of the value of utility service against what might have been charged by a company officer for what he did. (Decision reviewed in PUBLIC UTILITIES FORTNIGHTLY, May 10, 1956, at p. 715.)

Cash Payment for Utility Service

The United States Supreme Court long ago (282 US 520) approved a rule that nothing but money might be accepted in payment for railroad transportation. The Utah commission ruled that carriers could not exchange mileage for advertising space in newspapers (PUR1918B 1). The Virginia commission disapproved the practice of giving annual passes to sheriffs and clerks of court in payment of fees and commissions for their services (PUR1917F 703). In the words of the West Virginia supreme court of appeals (PUR-1919D 895), to effectuate uniformity there must be a standard of measurement applicable to all, and the only appropriate standard is money.

The Wisconsin commission expressed the same view in disapproving the rendering of electric service in exchange for a right of way since this was termed an "indefinite dollar consideration" for the right (13 PUR NS 179). The furnishing of service in exchange for rights of way has been disapproved in Pennsylvania (22 PUR NS 259) and in California (96 PUR NS 493).

The Federal Power Commission once said that the rate must be the entire consideration (33 PUR NS 257). A company had claimed that money was not the only consideration in making certain rate concessions. The Pennsyl-

vania commission required the discontinuance of an exchange of facilities for service (45 PUR NS 39). A water company's well supply and pumping facilities were maintained by a large coal company customer and electric power and labor to operate pumps were furnished by the coal company and at its expense, in return for which the water company furnished water at a nominal flat rate charge per month.

Cash Payment Not Required

Contrary views have, however, been expressed. The Florida supreme court in one case held that the law did not require that compensation for telephone service should be only in cash (PUR1917E 453). The Illinois supreme court decided that the sale of water power from a customer's dam to an electric utility in consideration of a specified amount of electricity was not illegal (PUR1919E 486). The Maine supreme judicial court decided that a city's contract to pay for water a sum equal to taxes assessed against the company was valid (PUR1917A 313). Later, however, the Maine commission ordered a water company to cease rendering service to a customer under a contract as part of the compensation for labor (PUR1920F 172).

Free or Reduced-rate Service

When we come to the question of charging the usual rates for utility service supplied to officers and employees, we must, therefore, consider the question whether service may be supplied as part of the compensation for services and whether there is a legal obligation to collect established rates in any event. The answer seems to vary for different kinds of companies and for companies in different jurisdictions. Transportation companies and telephone companies have often been permitted to grant concessions to employees by way of passes and free or reduced-rate service, apparently because of considerations inapplicable to gas, electric, and water utilities. Statutes in some states exempt officers and employees from the general prohibition against rate discrimination. Such concessions are also allowed under the Interstate Commerce Act.

The California commission is among those which approved reduced transportation rates to employees (PUR1925A 817). The Colorado commission permitted railroad rate concessions to regular employees but not to those rendering part-time service to an employees' association (PUR1916A 905).

The Oregon commission said that the practice of supplying domestic electric service to employees at reduced rates was common and such service amounted to a portion of their compensation (PUR1924E 399, 406). The New Hampshire commission noted the existence of nation-wide discrimination in favor of railroad employees and said that a single railroad, involved in a rate case, should not hazard the labor troubles likely to ensue from the elimination of passes, in spite of the discriminatory feature of free transportation (PUR1924E 646).

The New York commission refused to interfere with the New York Telephone Company's practice of giving employees a 50 per cent reduction on their bills for local service or of rendering free service to some employees,

dependent upon the nature of their duties and length of service (5 PUR3d 33, 57). This practice was said to be authorized by a provision in the Public Service Law which prohibits telephone companies from giving free or reduced-rate service except to certain classes, including officers and employees. The company had defended the practice upon the ground that it was to its own interest for all employees to have telephones and that it was essential to good service. The commission said that if such practices were abolished, the company would be faced with demands for more compensation. The commission said it had repeatedly asserted its position that it would not interfere with collective bargaining rights. Any effort to curtail reduced rates to employees would be as improper as to limit paid holidays.

Disapproval of Rate Concessions

But rate concessions to employees of public utility companies have been considered improper in numerous cases; for example, in Arizona (PUR1915C 525), Idaho (PUR1932B 267), Massachusetts (PUR1915A 814), Missouri (PUR1918E 414), Montana (PUR1922E 402), New Jersey (PUR1915E 515), North Dakota (PUR1923B 450), and Wisconsin (PUR1918B 623). Rate concessions to employees of a telephone company were disapproved by the Pennsylvania commission (20 PUR NS 476). These did not involve railroads.

Rate concessions to officers and directors have often been disapproved, as in California (PUR1916A 271; PUR1916D 477), Missouri (PUR1916E 525), New Jersey (PUR1915E 515), and North Dakota (PUR1923B 450). In Indiana an exception was once made in favor of officers and employees of a telephone company when discontinuance of free service to others was required (PUR1918C 489), but later the commission disapproved free service to directors of a mutual telephone company in lieu of fees (87 PUR NS 28).

The Missouri commission decided that the value of water supplied to utility owners should be charged on the books the same as water for other consumers, although the owners gave their time in the management of the company's business without charge (PUR1923A 648). The Montana commission held that owners are not entitled to exemption from charges for water service (PUR1925B 535) and that free electric service to the home of a utility owner is illegal (24 PUR NS 462).

Review of Current Cases

Court Blocks Conversion of Little Inch Pipeline from Gas to Oil Transportation

THE United States court of appeals reversed and remanded an order of the Federal Power Commission (9 PUR3d 389) authorizing Texas Eastern Transmission Corporation to abandon its Little Inch pipeline as a natural gas carrier. The reason for the proposed abandonment was to make the pipeline available for trans-

portation of the petroleum products.

Future Expansion and Public Interest

The commission order approved a proposal not only to withdraw the pipeline from gas service but also to transfer its load to another line. The system would then operate at capacity, but would have no facilities available for expansion.

To provide for expansion of service would require looping of either the Big Inch line or another line. It was the company's declared policy not to expand either of the Inch lines because of the possibility of recapture by the government. Therefore expansion would necessarily mean looping the other line. This could entail an increase in the rate base. The consumers claim that they were entitled to the benefit of the less expensive expandability.

The court observed that a possible answer to this claim, so far as cost to the consumer was concerned, was that savings in operating costs through elimination of the Little Inch line would outweigh the increase in rate base. But, the court said, the sufficiency of this answer or any others that might appear from a study of the circumstances should be judged by the commission, rather than the court, in the first instance. The commission had "closed its eyes" to the existence of the problem of future expansion.

The court said that the fact that Texas Eastern would soon move to expand its gas deliveries was apparent throughout the proceedings. Consequently the court held that the commission's exclusion of evidence relating to future expansion and its refusal to consider future expansion in determining public convenience and necessity were erroneous.

Effect on National Antitrust Policy

Existing barge operators which transport petroleum to the markets sought to be served by Little Inch claimed that the order would enable Texas Eastern to take over the entire petroleum products market they were serving, and drive them out of business. This, they claimed, would be a violation of the national policy against monopoly expressed in the antitrust laws.

The court stated that although the commission has no power to enjoin conduct as illegal under the Sherman Act, or even to declare such illegality, it certainly has the right to consider a congressional expression of fundamental national policy as bearing upon the question whether a particular certificate is required by public convenience and necessity.

Parties Aggrieved

The appeal had been brought by two barge operators engaged in transporting petroleum products and by the city of Pittsburgh. Noting that the abandonment of the pipeline was motivated by a desire to make the line available for petroleum products, and that such operation would be in competition with the barge operations, the court concluded that the barge companies were parties aggrieved by the order and therefore entitled to appeal.

The city of Pittsburgh claimed that the alternate line could, at relatively little cost, be expanded to carry additional gas when demand increases and that, if this "cheap expandability" of the line were now to be exhausted as a replacement for the abandonment of Little Inch line, future expansion would require expensive construction of additional facilities, the cost of which would be reflected in increased rates to consumers. Pittsburgh and its residents are consumers of natural gas delivered through the Little Inch pipeline. The court, therefore, upheld Pittsburgh's right to appeal.

It was argued that there had been no showing of the likelihood of future ex-

pansion of natural gas deliveries or of the effect of such expansion upon consumers. But, the court said, Pittsburgh's standing must be taken as proven because the commission had excluded evidence relating to future expansion. *City of Pittsburgh v. Federal Power Commission, No. 12895, March 8, 1956.*

Water System Ruled Public Utility on Basis Of "Holding Out" to Serve

A SMALL privately owned water system serving only twenty-two customers was declared by the Connecticut commission to be a public utility. The proceeding to determine its status was instituted at the request of the customers, who also asked the commission to inquire into the reasonableness of rates and charges.

The operator insisted that his system was not a public utility for the reasons that service was restricted to a small group of patrons in a particular area and that he did not intend to furnish service in the future beyond this area. He asserted that these circumstances indicated that there was no "holding out" to serve the public generally.

The commission observed that a holding out to serve the public generally is a necessary element of a public utility. This holding out, however, need not be to all of the public, but merely to those members reasonably within the reach of the system's facilities.

One individual outside the restricted group had been granted permission by the operator's predecessor to tie in on the lines of the system. After the present operator acquired the system, this individual was permitted to accomplish the tie-in, thereby obtaining service. From this apparent ratification of the predecessor's granting of service to the outside customer, the commission inferred that the operator intended to serve all those members of the public who were reasonably within the reach of his facilities.

Other circumstances lent support to the commission's conclusion in the case. The water mains lay under public roads, and uniform rates were charged for service. With respect to the limited number of customers served, it was noted that the number of patrons or potential patrons was not determinative of the question whether the operation was a public utility.

Deciding that the system constituted a public utility, the commission directed that existing rates be continued in force pending the filing of required financial reports from which the utility's revenue requirements could be ascertained. *Re Stonecrest Manor Water Service, Docket No. 9232, March 20, 1956.*

Transit Company Appeal Rendered Moot by Subsequent Commission Rate Increase

A TRANSIT company, after having been granted a fare increase in a smaller amount than it had proposed, appealed the commission decision. Pending the appeal, the increase asked for by the company was granted because of a new wage contract. After a lower court had dismissed the appeal, the company appealed the dismissal to the Kentucky court of appeals. Numerous contentions were urged by

the company to induce the court to reverse the lower court's judgment and remand the case for a determination of the merits of the controversy. However, the appellate court held that the sole object sought by the appeal had in fact been effected as a result of the subsequent fare increase. Nothing was involved after the increase but some abstract propositions of law.

The court cited the universal rule that it would not consume its time in deciding moot cases. The fact that the question involved was of public importance did not change the rule.

A moot case, said the court, is one which seeks a judgment on a pretended controversy when in reality there is none, or a decision in advance about a right before it has been actually asserted and contested, or a judgment upon some matter which when rendered, for any reason, cannot have any practical effect upon a then existing controversy.

Falling within that category, continued the court, it was well established that where, pending an appeal, an event occurred which made a determination of the question unnecessary or which would render the judgment that might be pronounced ineffectual, the appeal was to be dismissed. The questions presented in this instance would be wholly ineffectual if determined by the court, in so far as affording the company any practical relief. *Louisville Transit Co. v. Kentucky Dept. of Motor Transportation, 286 SW2d 536.*

ICC's Denial of Additional Operating Authority Upheld

A UNITED STATES district court dismissed a suit brought by a common motor carrier to set aside an ICC order denying additional operating rights. The court pointed out that the scope of its review was limited to ascertaining whether or not there was warrant in the law and the facts for the denial of the application, and whether the commission had made sufficient explication to enable the parties and the court to comprehend its actions. The court held that the commission's findings properly showed that the grant of additional operating rights would not be in the best interests of the public.

The carrier had stressed two things in arguing that the commission's order was not supported by the evidence: first, the difficulty of handling the shipper's product because of its nature and, second, the shipper's desire to have the carrier's personalized service.

The court replied that the fallacy of the carrier's contentions was as apparent to it as it must have been to the commission. The bulk of the shipper's product was transported by rail without any special equipment. If there was a need for special equipment, there was a complete failure of proof upon the part of the carrier that such equipment could not or would not be furnished by the existing carriers, and, to the contrary, one carrier which had appeared in opposition was found to have equipment available to handle the traffic. In stressing the desire of the shipper for personalized service, the carrier had bottomed its argument on a false premise, said the court. Congress had expressed its legislative intent in creating the commission that, through its expertise administration, a sound transportation system would be established to meet the needs of the general traveling and shipping public not only today, but in the generally foreseeable future. For the commission to indulge the understandable preference and desire of the shipper for day-to-day per-

sonalized service would be contrary to the expressed legislative intent and would jeopardize existing facilities by ruinous competition, and would ultimately lead to chaos. *Sinett (Supreme Trucking Co.) v. United States, 136 F Supp 37.*

Gas Pipeline Subject to Regulation Relieved of Common Carrier Status under Mineral Lands Act

THE United States court of appeals affirmed a Federal Power Commission order relieving Montana-Dakota Utilities Company of any obligation to operate its gas transmission lines as a common carrier under the Mineral Lands Leasing Act of 1920. According to the court, a 1953 amendment to that statute, relieving natural gas pipelines regulated by the Federal Power Commission or other regulatory bodies from common carrier status, applied to this pipeline company.

Mondakota Gas Company, a producer and shipper of gas, had argued on appeal that the amendment did not apply to pipelines already subject to the common carrier restrictions of the act.

The court, in upholding the commission action, referred to the legislative history of the amendment. The report on the House bill spoke of the incompatibility between the characteristics of a natural gas pipeline and its operation as a common carrier. It indicated a belief that the common carrier provisions of the act restricted the capacity of the pipelines to serve public needs. Thus, the object of the amendment was, as later explained by the House managers, to "relieve" certain pipelines from the common carrier obligation. The court concluded that the language of the amendment clearly expressed this object and that the appellant's construction would substantially defeat the legislative intent. *Mondakota Gas Co. v. Federal Power Commission, No. 12759, March 15, 1956.*

Telephone Co-operative Member Denied Company Service

THE North Carolina commission denied a request by a former subscriber to require a telephone company to provide service to his place of business. This subscriber had applied for membership in a telephone co-operative upon representations of persons connected with the co-operative that it would not impose toll charges on calls to a near-by community within the company's territory. Although it later decided to make such toll charges and so informed this subscriber, he neglected to contest a proceeding in which the co-operative was permitted to purchase the company's facilities in his area and provide service there

Being later faced with heavily increased charges for service by the co-operative, this user complained to the commission and asked that the company be ordered to furnish service to him again. But to do this, having transferred its facilities, the company would be compelled to build new lines or make special arrangements with the co-op for the use of its facilities.

The commission considered this subscriber "the author of his own misfortune." Prior to his connection with the

co-operative, he enjoyed adequate service from the company toll free. Furthermore, having learned after applying for membership that the co-operative would impose the toll charges complained of, he should have protested the subsequent proceeding in which the company was permitted to sell its facilities and relinquish the territory in which he conducted his business.

Considering all these circumstances, the commission concluded that this user had not sustained the burden of showing that the public convenience and necessity required his telephone service to be transferred back to the company. He was therefore left in the position in which he had placed himself. *Re Casstevens d/b/a Casstevens Lumber Co. et al. Docket No. P-10, Sub 44, March 27, 1956.*

Aggressive Solicitation by Contract Carrier Not "Holding Out" as Common Carrier

A MOTOR carrier licensed under the Federal Motor Carrier Act as a contract carrier was ordered by the ICC to cease operations as a common carrier. The commission took the view that the carrier had not sufficiently specialized its operations and that advertising by the carrier which did not indicate whether it was a common carrier or a contract carrier, as well as active solicitation of business, established that the carrier had held itself out as a common carrier.

On appeal, the United States Supreme Court affirmed the district court's reversal of the commission order. Whatever specialization was required of a contract carrier under the act, said the court, was satisfied where the carrier hauled only strictly limited types of products under individual and continuing contractual agreements with a comparatively small number of shippers throughout a large area.

The fact that the carrier had actively solicited business within the bounds of its license did not support a finding that it was holding itself out to the general public as a common carrier. A contract carrier, stated the court, is free to search aggressively for new business within the limits of its license.

The ICC's order was, therefore, held not supported by evidence and contrary to the definitions of contract and common carriers contained in the act. *United States v. Contract Steel Carriers, Inc. 76 S Ct 461.*

Agreement Required for Motor Freight Interchange Authority

ASIDE from procedural questions, the North Carolina supreme court upheld a decision of the state commission dismissing a proceeding by an irregular route motor carrier for authority to interchange freight with a regular route common carrier.

The applicant obtained its irregular route carrier certificate under a "grandfather" clause of the North Carolina Truck Act, which provided in substance that if a carrier was in operation on January 1, 1947, the commission would issue a certificate to such carrier. By another section of the act regular carriers were permitted to interchange traffic with irregular carriers

"with the approval of the commission." Under a complementary rule adopted by the commission pursuant to express statutory authority to enforce the act, carriers in the position of the applicant, in order to secure authority to interchange traffic with a regular route common carrier, were obliged to show an interchange agreement with such regular route carrier.

The applicant in this case was able to show no agreement, nor did the other carrier with which the applicant sought to interchange traffic request or assent to the authority sought. Asserting, however, that it was conducting interchange operations at the time the "grandfather" clause was enacted, the applicant maintained that it was therefore entitled, under the law, to continue such operations.

Agreement Necessary to Jurisdiction

The commission pointed out that prior to the adoption of the rule, interchange of traffic was conducted at will under working agreements between regular and irregular carriers.

Therefore, in requiring a showing of an agreement before authorizing an irregular carrier to demand interchange of traffic with a regular carrier, the commission merely gives its sanction to an agreement which was the former, as well as the present, basis of such interchange operations.

Upon a motion of protesting carriers, who claimed that the requested authority was not required by the public convenience and necessity, the commission dismissed the proceeding on the ground that it lacked jurisdiction because of the failure of the applicant to produce an interchange agreement. In upholding the commission's action, the court thereby sustained the rule requiring an agreement as a prerequisite to the granting of interchange authority. *North Carolina ex rel. Utilities Commission v. Youngblood Truck Lines et al. 91 SE2d 212.*

A decision in a companion case to the above decision was also affirmed by the North Carolina supreme court on identical grounds. *North Carolina ex rel. Utilities Commission v. Youngblood Truck Lines et al. 91 SE2d 221.*

Return Limited to 5.70 Per Cent on Fair Value

AN application for a rate increase of approximately 100 per cent filed by a water company, which for some time had been operating at a loss, was denied by the North Carolina commission, though a smaller increase sufficient to afford a rate of return of 5.7 per cent on a fair value rate base was allowed.

The plant was purchased by the present owners for approximately $164,000, while the net investment at the end of the test period was calculated by the commission to be about $355,000, and the reproduction cost less depreciation was submitted as approximately $832,000. Considering these facts, together with the value of the service rendered, plant improvements, and the probable earning capacity of the company, the commission fixed the fair value of the property used and useful at $390,000.

The total equity capital amounted to $50,000, and debt capital consisted of $148,000 of 4½ per cent long-term bonds.

A rate of return of 5.7 per cent on the fair value rate base was found to be fair both to the company and the public. The commission calculated that this figure would be adequate to insure the payment of interest on debt, provide funds for the

recoupment of operating loss experienced during the test period, enable it to pay its stockholders a reasonable dividend, and add to surplus an amount which would permit it, under good management, to maintain and support its credit. New rates were accordingly authorized to be filed.

Dissenting Views

A dissenting commissioner was of the opinion that the majority, because of faulty accounting judgment, fixed the net investment figure much too low. Expenses claimed for the test period, such as maintenance of tanks and rate case expenses, were disallowed as "nonrecurring expenses." These items, said the commissioner, should at least have been amortized, if not entirely allowed, for the reason that they do in fact recur "as common sense will make us realize." In addition, this commissioner would have made provision for substantial anticipated expenses which he considered reasonable and necessary, but which were disallowed by the majority.

It was observed that the commission had never set a rate of return as low as 5.70 per cent, and until recently had held that the rate of return should be set at approximately 6.50 per cent. The commissioner indicated that the effects of regulatory lag and the ever-increasing cost of service on the actual, realized rate of return should be considered in the rate-making process. He asserted that a utility company is entitled to earn a rate of return on the value of its property in keeping with the usual earnings of other businesses. Such a rate of return would be at least 6 per cent, the commissioner said, and in some instances it would be more. *Re Carolina Water Co. Docket No. W-54, Sub 4, March 22, 1956.*

Commission Reaffirms Its Jurisdiction over Power Project upon Court's Remand

THE Federal Power Commission, on remand from the United States court of appeals, amended a power project license issued to California Oregon Power Company, to effectuate the company's stipulation for the protection of water users and to change the expiration date of the license. The original license (3 PUR3d 207) required the company to contract with the federal government concerning continued use of a government dam for the release of surplus water for operation of the company's downstream projects.

The company had been using the government dam under a contract which was to expire in 1967. A new agreement was executed and filed with the commission, which was intended to supersede the original agreement. The commission concluded that the annual benefits to the United States under the new agreement would be substantially the same as under the original one. However, it amended the license to fix the charges for use of the dam in accordance with the annual benefits received by the United States under the new agreement.

Jurisdictional Questions

The court had raised a question as to the commission's jurisdiction to make additional charges if the original agreement had been extended to cover the full period of the license. The commission held that the authority reserved to it in the license to readjust charges was not limited to the fixing of other reasonable annual

charges in the event of the termination of the original agreement while the license was still outstanding. Authority to readjust could be exercised by it with the approval of the Secretary of the Interior "at the end of twenty years after the project is available for service and at periods of not less than ten years thereafter upon notice and opportunity for hearing," without regard to whether the original agreement was extended to accord with the terms of the license or whether the new agreement superseded the original.

One of the stated purposes for the amendment to § 10(e) of the Federal Power Act was, according to the commission, to authorize it to readjust charges fixed in licenses, including licenses involving the use of government dams.

"Surplus Water" Clause

The court had also asked the commission to set forth the basis and principles for assuming jurisdiction under the "surplus water" clause in § 4(e) of the act over a power project not located at or in the immediate vicinity of a government dam. The commission was also asked to state why the surplus water basis for its jurisdiction should be asserted in these proceedings since no additional charge was imposed on the licensee.

The commission deemed it immaterial to its licensing authority under the "surplus water" clause whether the hydroelectric developments utilizing the surplus water from a government dam were constructed at, or in the immediate vicinity, or several miles downstream from the government dam. Furthermore, the commission did not believe that there was any purpose for such a limitation.

The commission conceded that it could not fix additional charges at this time since the annual benefits to the United States under the original agreement and under the new agreement constitute reasonable annual charges under present conditions. However, it said, if such charges become unreasonable in the future they may be readjusted.

A further reason why the commission's jurisdiction under the "surplus water" clause should be asserted in this case was held to be that § 23(b) of the act makes it unlawful for the licensee to operate without authority to use surplus water from a government dam. The commission had found that the project would occupy lands of the United States and fixed reasonable annual charges for their use. These charges could be readjusted. The commission could see no reason why its practice in respect to the use of a government dam should be any different from its practice with respect to the use of government lands, when such uses are supported by the evidence of record. The record in this case supported both uses. *Re California Oregon Power Co. Opinion No. 266-A, Project No. 2082, Docket No. E-6390, February 28, 1956.*

Cost of Capital Determined to Fix Rate of Return on Reproduction Cost Rate Base

GRANTING a rehearing in a water company rate case, the Ohio commission approved a rate of return of 3.57 per cent —a slight increase over the rate allowed in the original order (11 PUR3d 275). Under the Ohio law the rate of return is required to be determined on a reproduction-cost-new-less-depreciation rate base.

The rehearing was allowed on two objections made by the company. First, it

was objected that in the original hearing the commission took administrative notice of the company's annual reports without giving it an opportunity to explain or rebut them. The objection was sustained.

Being a quasi-judicial body, the commission may take administrative notice of its files and records, including, of course, the annual reports of utilities. But in taking administrative notice of such documents, said the commission, an opportunity should be given to the parties involved to explain, refute, or rebut them. In this instance, however, after hearing the company's evidence upon the reports, the commission reaffirmed its former finding based in part upon them.

Computation of Rate of Return

The other objection related to the determination of the rate of return. No question was raised with respect to the amount fixed for the rate base. In arriving at a fair rate of return of 3.57 per cent, the commission considered principal factors:

(1) Equity capital adjusted to reproduction value, using the actual equity ratio of 38.48 per cent.

(2) A return of 6.7 per cent on the adjusted equity capital, which was fixed as proper in view of such factors as the dividend-price ratio of comparable companies and comparative risks between this and other water companies; a pay-out ratio of 75 per cent; and the generally lower return to water companies than to other utilities.

(3) The actual annual interest expense; that is, the fixed amount payable to bondholders.

Applying the rate of return to the rate base, the allowable dollar return was ascertained and rates authorized accordingly.

Dissent on Calculation of Return

A dissenting commissioner said the majority opinion failed to give full weight to the rate base in determining the fair rate of return. Instead of basing fair rate of return upon actual debt capital cost notwithstanding that equity capital was raised to reproduction value, this commissioner would multiply the debt ratio by the cost of debt capital (61.52 per cent x 3.48 per cent), and adding the product thus obtained to the product of the ratio of equity capital multiplied by the cost thereof (38.48 per cent x 6.7 per cent), would arrive at a fair rate of return of 4.72 per cent, a substantially higher figure than the 3.57 per cent found in the majority opinion. *Re Ohio Water Service Co. No. 25,381, April 3, 1956.*

Local Taxes Passed on to Local Telephone Subscribers

A RECENT order of the Virginia commission authorized the Chesapeake & Potomac Telephone Company of Virginia to bill local customers pro rata for local taxes and franchise fees imposed by local governments, where the aggregate of such levies amounts to more than one-half of one per cent of the total charges for local exchange service. Franchise fees based on pre-existing contractual arrangements, however, were excluded under the order, as were also future voluntary franchise agreements.

In an opinion recently decided, the commission indicated that it sought to place the local tax burden upon those who should bear it, and prevent each locality from upsetting the statewide system of rate making for its own advantage. The principle involved, said the commission, is

of the greatest importance to the rate-making process.

Commission Legislation

The commission recognized that it was exercising pure legislative power in establishing the one-half-of-one-per-cent point at which local taxes would fall back upon local consumers. But full legislative power to fix rates and charges for telephone companies is vested in the commission by the Constitution of Virginia. Its authority on this score is also plenary.

The commission prescribed the one-half-of-one-per-cent limitation to keep the order from interfering with the sort of moderate taxes and fees that have been levied for many years without any intent to make outsiders bear local tax burdens.

Placing of the Tax Burden

Under the federal Constitution, a utility is entitled to sufficient gross revenues to meet all its expenses, including taxes. Since ratepayers must provide these revenues, the question presented in this case was simply: Which ratepayers should bear the burden of local taxes, local consumers or all the customers of the utility?

In support of its decision, the commission observed, first, that if utilities did not pay local tax levies, which primarily benefit local residents, the taxes would have to be levied upon local taxpayers; and secondly, that the normal practical limitations brought to bear by constituents upon their legislative representatives, who fix the the amount of taxes, would not be effective if the taxes were paid by others than the constituents. In such circumstances local governments would be inclined by self-interest to rely increasingly upon such taxes for their support. Since, moreover, the amount of a tax is a legislative and not a judicial question, the utilities would be at the mercy of the local legislative body. "If Kentucky," said the commission, hurrying the argument along, "could levy a tangible personal property tax on the gold at Fort Knox it would be a bonanza for the citizens of Kentucky." These observations underlie the commission's order. *Re Chesapeake & P. Teleph. Co. of Virginia, Case No. 12823, March 30, 1956.*

An earlier order in this case was reviewed in PUBLIC UTILITIES FORTNIGHTLY, March 15, 1956, page 421, reported in 12 PUR3d 1.

No Downward Adjustment in Depreciation Reserve

THE New Jersey commission authorized a water company which was a subsidiary of a holding company to increase its rates. The estimated return of 5.8 per cent was considered fair.

The company had related *pro forma* operating income for the test year to a "spot" rate base at the end of the test period. Normally, commented the commission, an average rate base is used for the purpose of testing rates. Here, however, the major additions to plant were made during the latter part of the test year. Since the additions were mainly in the nature of non-revenue producing plant, the commission adopted the spot rate base.

The company's calculation of rate base was submitted by a witness representing a firm retained for the purpose of making an inventory, an original cost study, and a recalculation of depreciation reserve. On the basis of the study, the witness stated that the calculated depreciation reserve was approximately $20,000 less than that

accrued on the books through charges to depreciation over the years.

The witness deducted his calculated reserve from the original cost. On cross-examination, however, the witness admitted that the effect of his depreciation computations was, in fact, a reaccounting. He agreed that the book reserve for depreciation represented recovered investment through charges against operating revenue, provided the company had sufficient earnings. The downward adjustment in the reserve, said the commission, would result not only in a duplicate recovery of investment over the remaining life of the plant but would also result in customers providing an interim return on plant upon which they had in effect returned the investment. *Re Toms River Water Co. Docket No. 9004, March 7, 1956.*

Water Surcharge Authorized for Nonconserving Air-conditioning Units

PRIMARILY to discourage the increasing use of air-conditioning units of the type which do not conserve water, the Illinois commission authorized a water company to apply a progressive surcharge for the use of such equipment. Effective May 1, 1957, the surcharge is to be $25 per ton per annum for nonconserving units. The charge is to be $35 for the next year and $40 for the following year.

There are two general types of water-cooled air-conditioning equipment: water conserving and nonwater conserving. The conserving units use recirculated water and require only "make-up" water to compensate for evaporation, while the nonconserving equipment uses water but once. The latter units, however, having no recirculating apparatus, are initially less expensive than the other type.

Although the company was presently able to supply peak demand, including summer air-conditioning requirements, it appeared that the increasing use of nonconserving air-conditioning units would shortly necessitate an uneconomic expansion of the company's plant.

Besides the primary purpose of water conservation, the commission authorized the surcharge in order to compensate the company for the poor annual load factor involved in the use of the nonconserving units.

A further purpose was, of course, to eliminate any rate discrimination against the average customers who use approximately the same amount of water the year around. *Re Northern Illinois Water Corp. No. 42692, March 20, 1956.*

In a similar case the commission approved a proposed $25 per ton per annum surcharge to be applied in 1957. *Re Inter-State Water Co. No. 42691, March 20, 1956.*

Racial Discrimination by Air Carrier Held Actionable in Federal Courts

A UNITED STATES court of appeals decided that an action brought by several Negro passengers against an air carrier for racial discrimination in violation of the Civil Aeronautics Act was a suit arising under a law of the United States and was therefore within the jurisdiction of a federal court. The passengers, having pur-

chased first-class transportation from San Francisco to Sydney, Australia, were deprived of their assigned seats at Honolulu. They charged that the carrier's action was motivated by prejudice against them because of their race and color.

The Civil Aeronautics Act expressly prohibits discrimination against passengers and makes it a federal crime to violate the provision. The carrier contended that any remedy that might be available to these passengers must be sought from the Civil Aeronautics Board, which has authority to issue an order compelling compliance with the act.

The court disagreed. It observed that since such an order must look to the future, obviously it cannot afford redress to one harmed by a carrier's misconduct in the past. This was not a case where the board had exclusive primary jurisdiction. The Civil Aeronautics Act, unlike the Interstate Commerce Act or the Shipping Act, confers no power on the administrative agency to grant reparation in money for past misconduct of a carrier. Nor has the board power to approve violations of the provision prohibiting discrimination.

Violation of the provision relating to discrimination, said the court, creates by implication an actionable civil right notwithstanding that the only sanctions provided are criminal. Although the right of action might cover the same ground as a right already existing under the common law of the states, it is nevertheless a suit arising under a law of the United States and is therefore within the jurisdiction of a federal court.

It was also pointed out that the uniformity which the Congress sought to obtain in the practices of carriers subject to the act would not be satisfied by leaving such a passenger to his remedy under the common law of the several states. Moreover, in the light of recent Supreme Court decisions, the court indicated, the doctrine of "separate but equal" facilities applied in some of the states would not satisfy the express prohibition of discrimination contained in the act. *Fitzgerald et al. v. Pan American World Airways, 229 F2d 499.*

Bus Line Authority Properly Revoked after Sixteen Years' Abandonment

IN affirming a decision of a lower court, the Tennessee supreme court upheld the state commission's action in revoking the certificate of a bus company to operate between certain points in the state. The revocation order was predicated upon a finding that the company had abandoned its authority since it had not offered the authorized service for a period of sixteen years.

The court noted that the scope of judicial review is limited to a determination of whether or not there is substantial or material evidence to support the commission's finding. The evidence in this case was regarded as being entirely sufficient.

Citing a provision which required that a carrier "operating between points within this state" must be given an opportunity to correct deficient service before its authority may be revoked, the company insisted that revocation of its certificate was invalid because it was not first afforded an opportunity to provide efficient service. The court ruled that this provision did not help the carrier since it applied to carriers actually operating, as distinguished from those merely authorized to operate. This carrier had not offered service over the route here concerned for many years.

Notice of Revocation

A question was raised as to whether the commission had complied with statutory procedural requirements, assuming that it had the right to revoke the certificate. A statute provided that the commission must give notice before revoking a carrier's authority. A letter which was sent by the commission to the company prior to hearing, asserting serious doubt as to the company's right again to offer the service in question, as it proposed to do, was held to be sufficient notice to satisfy the statute. *Continental Tennessee Lines, Inc. et al. v. Fowler, 287 SW2d 22.*

Other Recent Rulings

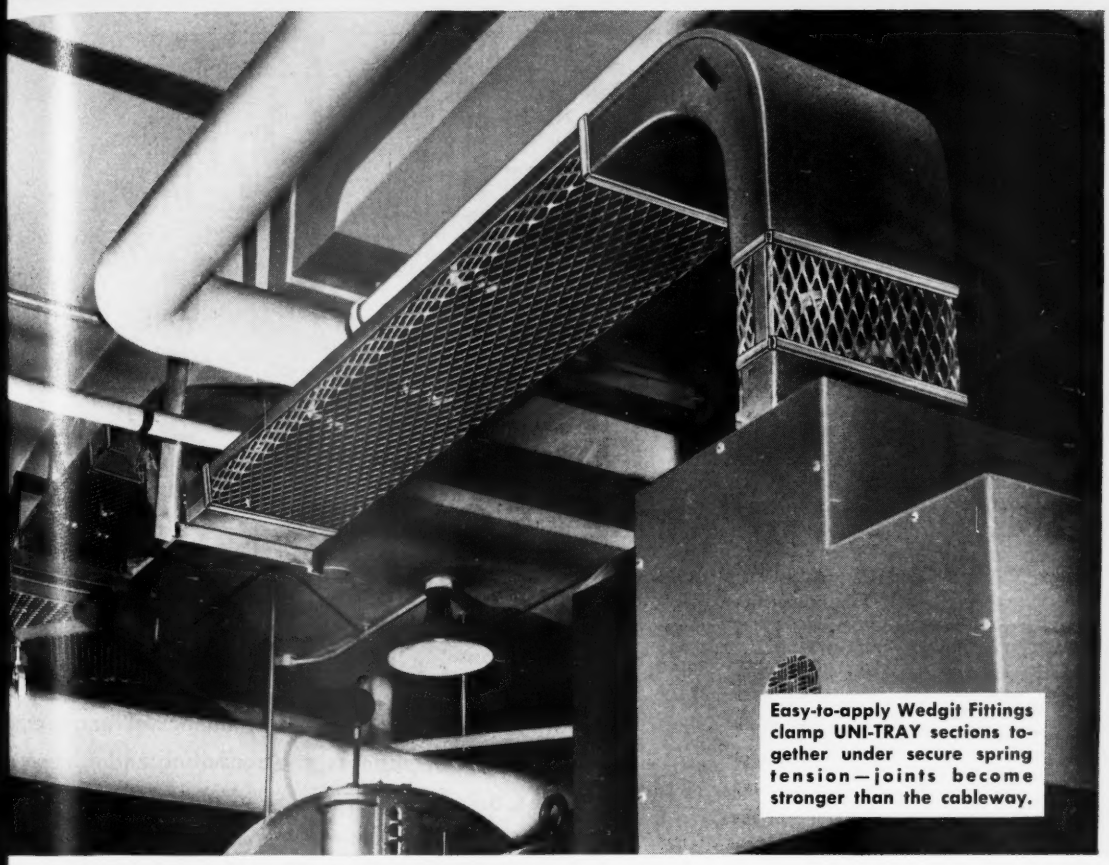
Return during Expansion Program. A return of approximately 6.5 per cent on a telephone company's fair value rate base was considered reasonable by the North Carolina commission pending the completion of an expansion program. *Re Albemarle Teleph. Co. Docket No. P-1, Sub 6, January 20, 1956.*

Freight Rate Reduction. Upholding a commission order reducing certain intrastate freight rates, the Texas supreme court held that the railroads, upon appeal, had the burden of showing that the reduction was confiscatory or unreasonable, and that a mere showing that the lower rates would result in a loss of revenue would not warrant a reversal of the commission's order. *Texas & N. O. R. Co. et al. v. Texas R. Commission et al. 286 SW2d 112.*

Rival Certificate Applicants. Of two rival natural gas pipeline companies applying for authority to serve a number of municipalities in South Carolina, the commission awarded a certificate to the one which showed the more adequate capitalization, proposed the better pipeline installation, and was locally owned and operated. *Re Carolina Pipeline Co. et al. Docket Nos. 9680, 9702, Order No. 9933, March 14, 1956.*

Electric Metering Preferred. Dismissing a complaint that the establishment of metered electric rates in place of flat rates had increased the cost of service to some customers, and that the new rates were unlawful because not based upon a new evaluation of property, the Montana commission asserted that the use of metered rates is the fairest method of charging for electric service, and noted in this instance that they had not in fact resulted in a general increase of revenues. *Whitefish Community League v. Pacific Power & Light Co. Docket No. 4166, Order No. 2556, January 25, 1956.*

Motor Carrier Insurance Requirements. The New York commission raised the insurance requirements applicable to common motor carriers to limits of $25,000/$100,000 bodily injury and $10,000 property damage where such limits were necessary for the protection of the public and the majority of carriers already were carrying higher limits in order to meet ICC requirements. *Re Insurance Requirements for Truck Operators, Case MT-33, September 21, 1955.*



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With Delta-Star's UNI-TRAY Cable-ways you reduce installation time up to 40%—substantially cutting cableway costs. Simply position the trays, then tap in Wedgit Fittings to connect sections. No bolts, pins or hinges to fit or tighten. UNI-TRAY Cable-way joints are assembled four times faster than with other type fittings.

Strong, lightweight expanded metal sections provide ventilation necessary for high current rating of cables—prevent collection of water and dirt. Continuous Wedgit contact areas provide excellent electrical contact for ground currents.

UNI-TRAY sections are available in hot-dip galvanized steel, with aluminum Wedgit fittings. Aluminum sections also available. A wide variety of shapes and sizes meet specific requirements.

For complete facts, write for UNI-TRAY Publication No. 68—or see your nearby Delta-Star representative.

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Industrial Progress

Northern States Power Plans 3-Year Outlay of $117,000,000

ORTHERN States Power Company plans to spend $117,000,000 for w construction during the next three ars, with $40,000,000 slated for 56, according to Allen S. King, esident.

Mr. King said surveys by the comny indicate that more than 11,000 res of industrial sites in the area ve been purchased or are under conderation by industries planning exnsion.

"More than 130 applications for w electric service calling for loans 50 kilowatts or more have been reived so far this year," he reported. his includes 30 new factories or ctory additions, 18 new schools, and large retail shopping centers."

He said a greater number of such plications is expected during the reinder of the year. Over 603 applitions from large light and power ers were received last year. The mpany further estimates 16,500 w homes will be built in its service ea in 1956, Mr. King said.

nsas City Pwr. & Lt. Dedicates Hawthorn Station

ANSAS City Power & Light Comny's 132,000-kilowatt Hawthorn tion was dedicated May 3 at a ceremony attended by nearly a thousand ests representing the business, civic, vernmental and religious life of the mpany's service area.

Harry B. Munsell, president of the mpany, told the dedicatory audience t the plant was built because the mmunity's growth required it, and cause the officers and directors of company have confidence in the ture of the community. Mayor H. e Bartle of Kansas City gave the dicatory address.

Construction of the 51-million-dollar plant by Ebasco Services, Inc., was started in 1949, and two 66,000-kilowatt generators went on the line in 1951, and 100,000-kilowatt units were brought on in mid-1952 and mid-1955.

Philadelphia Electric Contracts For Second Generator at Eddystone

PHILADELPHIA Electric has contracted for installation of a second giant turbine generator at its new Eddystone station, now under construction on the Delaware river near Chester, it was announced recently by H. N. Ramsey, executive vice president. This unit, like the first, will operate at super-critical steam pressures. It will be built by the General Electric Company.

According to the announcement, the new unit will be one of the world's largest and most efficient, matching the 325,000-kilowatt capacity of the first. It is expected to be in operation early in 1960. The first generator is scheduled for use in 1959. Together, these two giants will produce enough power to supply the electrical needs of one million homes.

Eddystone station, which will cost $110,000,000 when completed, is an important part of the utility's postwar construction program. Already P. E.'s program has involved expenditures of more than $500,000,000 since 1946. It is expected to continue at an accelerated rate, averaging more than $1½ million weekly, to aggregate nearly $900 million by 1960.

New Delta-Star Bulletin Available

DELTA-STAR Electric Division, H. K. Porter Company, Inc. announced the availability of a new technical publication, 5604 which covers a newly designed line of PMB-40 horizontal single side break, braidless, group operated switches. Publication 5604 is fully illustrated, tables provide all the technical data as well as complete weights and dimensions. Switches rated from 7.2 to 161 kv in current ratings of 400, 600 and 1200 amperes are listed.

These new braidless switches feature new high pressure contacts and new low friction swivel terminals which eliminate drag on the conductor. They are ideally suited for use as oil circuit breaker or transformer disconnects. Six pole operation is easily accomplished.

Copies are available on writing to Delta-Star Electric Division, H. K. Porter Company, Inc., 2437 W. Fulton St., Chicago 12, Illinois.

New England G. & E. System to Spend $31,000,000 in 4-yr. Period

THE new construction program of the New England Gas and Electric System for the four-year period 1956-1959, inclusive, contemplates expenditures of some $31,000,000. Of this amount, approximately $7,000,000 will be required in 1956.

The net additions to System properties in Cambridge, Somerville, Worcester, New Bedford, Plymouth County and throughout Cape Cod and Martha's Vineyard amounted to almost $5,000,000 in 1955. Major part of these expenditures was for the purpose of extending service to new gas and electric customers and for meeting the expanding requirements of existing customers.

G-E Expanding Gas Turbine Department Facilities

THE General Electric Company recently announced a $6,800,000 expansion of its gas turbine department facilities located in Schenectady. The department manufactures gas turbines

(*Continued on page 22*)

for electric utility, industrial, railroad, and marine use.

Present manufacturing facilities, already the largest in the United States for producing gas turbines for these uses, will be expanded to include more of the large machine tools required to manufacture General Electric's new line of gas turbines. In addition, a headquarters building, which will house engineering, marketing, financial, and employee relations functions, will be established adjacent to the manufacturing operations.

A-C Releases New Distribution Regulator Bulletin

HOW Allis-Chalmers distribution regulators increase revenue, reduce service costs and improve customer relations for utilities is told in a new 16-page bulletin released by the company.

The bulletin describes and portrays the exclusive unit construction of Allis-Chalmers ⅝% step voltage regulators and the features which assure easy installation, improved operation and simple maintenance. These include automatic "Feather-Touch" control and "Quick-Break" tap-changing mechanism.

Copies of "Allis-Chalmers Distribution Regulators," 21B7977A, are available on request from Allis-Chalmers Manufacturing Company, 965 S. 70th Street, Milwaukee, Wisconsin.

Anderson Electric Corp. Is New Name of Anderson Brass

R. E. SCHULER, president of Anderson Electric Corporation, formerly Anderson Brass Works, Inc., of Birmingham, Alabama, announced the change in corporate name, effective April 15, 1956.

Thirty-year-old Anderson has been in the process of product redesign and greater diversification over a period of the last ten years. The Anderson product line of electrical power connectors, clamps, fittings and accessories is said to be the most complete line produced by any one manufacturer in the industry.

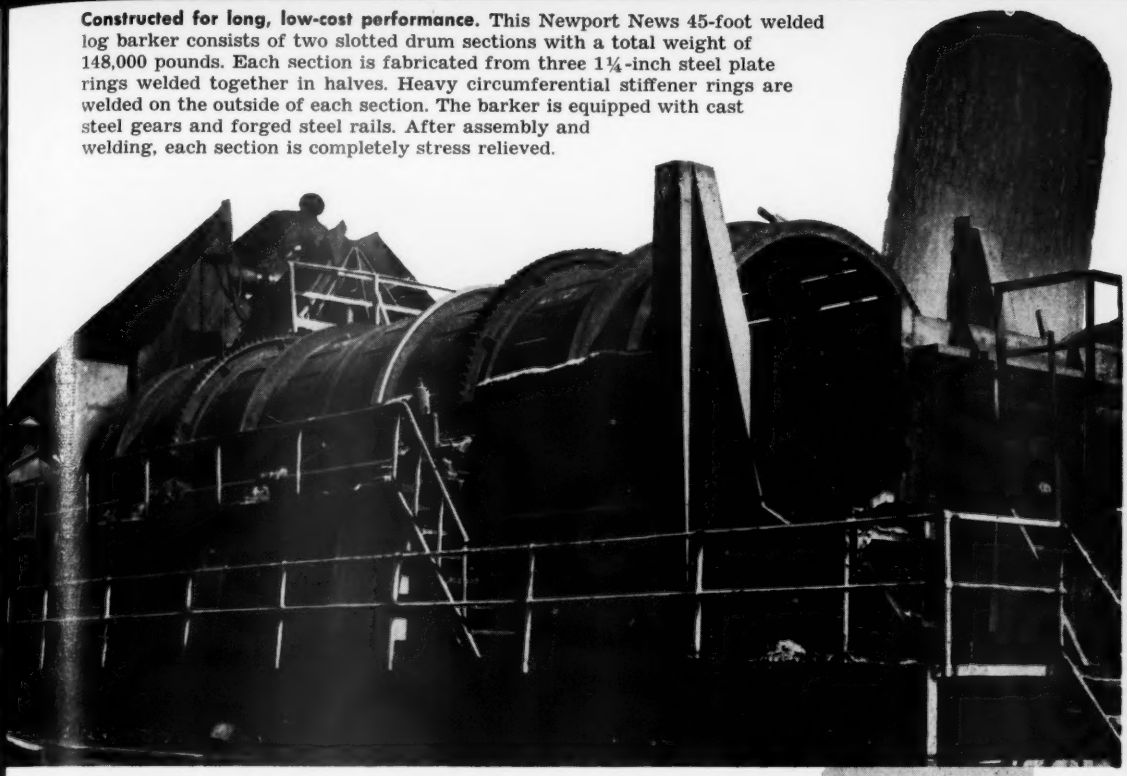
"Our new name," says Mr. Schuler, "will more closely identify us with the industry we serve and at the same ti will be more descriptive of the prod we manufacture. . . . Our plans for future reach far into the problem the users of electrical power c nectors and the other kindred prod we produce. Design, engineering manufacturing are all geared to endeavor to produce products of standing efficiency and long servic vital to the rapidly growing electri service demands."

"Compa-Station" Transmitte Receiver

MOTOROLA has announced "Compa-Station" transmitter-rece as a new addition to its standard of fixed FM 2-way radio equipm operating in the 25-54 or 144 megacycle band. This low cost, c pact unit includes a 60 watt tra mitter and the Motorola Sensicon receiver. It features a removable c trol panel with built-in speaker wh can be placed in any one of three p tions on the cabinet for versatilit installation.

(*Continued on page* 24)

Constructed for long, low-cost performance. This Newport News 45-foot welded log barker consists of two slotted drum sections with a total weight of 148,000 pounds. Each section is fabricated from three 1¼-inch steel plate rings welded together in halves. Heavy circumferential stiffener rings are welded on the outside of each section. The barker is equipped with cast steel gears and forged steel rails. After assembly and welding, each section is completely stress relieved.



Characteristics that ive a Log Barker Bite

Correct design, sturdy materials, advanced production techniques . . .

These characteristics of Newport News fabrication pay off in long, trouble-free, low-cost performance . . . whether the unit is a barking drum, dryer roll, digester or any other equipment incorporating Newport News' attention to detail.

Large engineering and technical staffs, operating a plant with acres of brass, iron and steel foundries, five huge machine shops and other extensive manufacturing facilities enable Newport News to meet most requirements.

Newport News-built equipment for the paper and allied industries has established excellent performance records in leading mills. Send us your inquiries . . . investigate how Newport News can serve you for present or future projects. Write us today for a copy of "*Facilities and Products*" . . . it's yours for the asking.

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The control panel can be at the top or bottom of the front panel for desk top or wall mounting, or on top the cabinet for desk side operation. Louvered vents are placed at alternate control panel positions. The control panel can also be removed and placed in any desired location for extended local control operation. The "Compa-Station" transmitter-receiver is easily adapted for 2-wire or 4-wire remote control operation from a remote control console.

Consumers Power Awards Piping System Contract to Dravo

DRAVO Corporation, Pittsburgh, has been awarded a contract to supply and fabricate the high pressure piping system for a new 156,250 KW generating unit for the Consumers Power Company of Jackson, Michigan.

The new No. 8 unit, to be constructed at the power company's Weadock station at Essexville, Michigan, will have normal operating throttle steam conditions of 2000 P.S.I.G. at 1050 degrees (F) with reheat to 1000 degrees (F). Dravo will fabricate the main, hot and cold reheat, and boiler feed piping for the unit. Largest pipe in the main steam system will be 18 inches in diameter. It will be fabricated of Chrome-moly alloy steel.

G-E to Supply 125,000 KW Unit For Georgia Power

A 125,000-kilowatt steam turbine-generator unit capable of furnishing the electrical needs of an average community of over 200,000 people has been ordered by the Georgia Power Company from the Large Steam Turbine-Generator Department of the General Electric Company.

This unit will be installed in the utility company's Yates power station at Newnan, Georgia, and when placed on the line in early 1958, it will join four other G-E steam turbine-generators in furnishing power to Georgia residents.

The Yates station, which was dedicated in October 1952, already is furnishing power from three G-E 100,000-kilowatt steam turbine-generators. A fourth G-E unit, which is identical in power capacity to the on just ordered, is scheduled for d livery in December 1956.

The turbine, which will drive 183,000-kva generator, will be of t 3600-rpm, tandem-compound, doubl flow, reheat type. Steam will enter t high-pressure section of the turbi at a pressure of 1800 psig and a te perature of 1000° F.

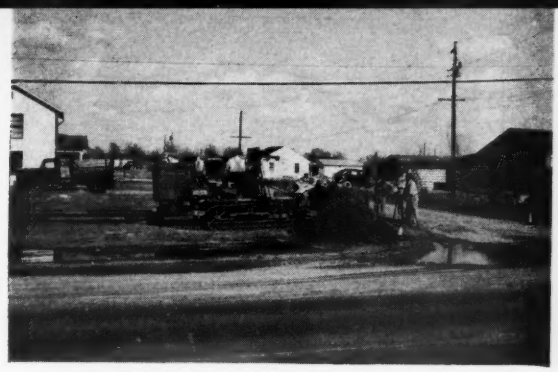
IBM Appointment

INTERNATIONAL Business M chines Corporation announced t appointment of William R. Bra shaw as special representative in t public utilities department, with hea quarters in Chicago. In his new po Mr. Bradshaw will assist in the c ordination of sales activities and pla ning of applications of IBM equi ment to meet the needs of compan in the public utilities field. He w also conduct classes for customer pe sonnel and seminars for IBM sa representatives, to keep them abre of new machine accounting and da processing techniques in the pub utilities field.

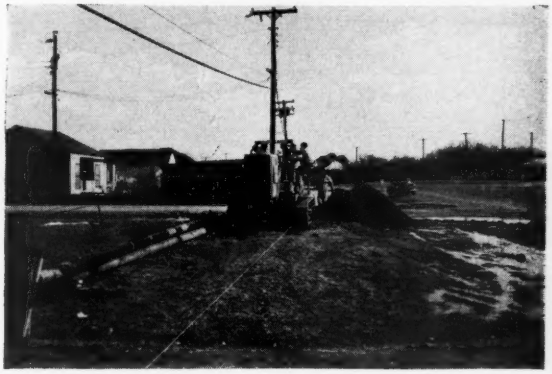
Lone Star Gas Co. — Cleveland users for over 30 years

More than 30 years ago The Lone Star Gas Company of Texas purchased its first Cleveland Trencher and has been a regular purchaser of Clevelands ever since. Today Lone Star provides natural gas service for approximately 750,000 customers in Dallas and Fort Worth and more than 400 other cities and towns throughout Texas and Oklahoma.

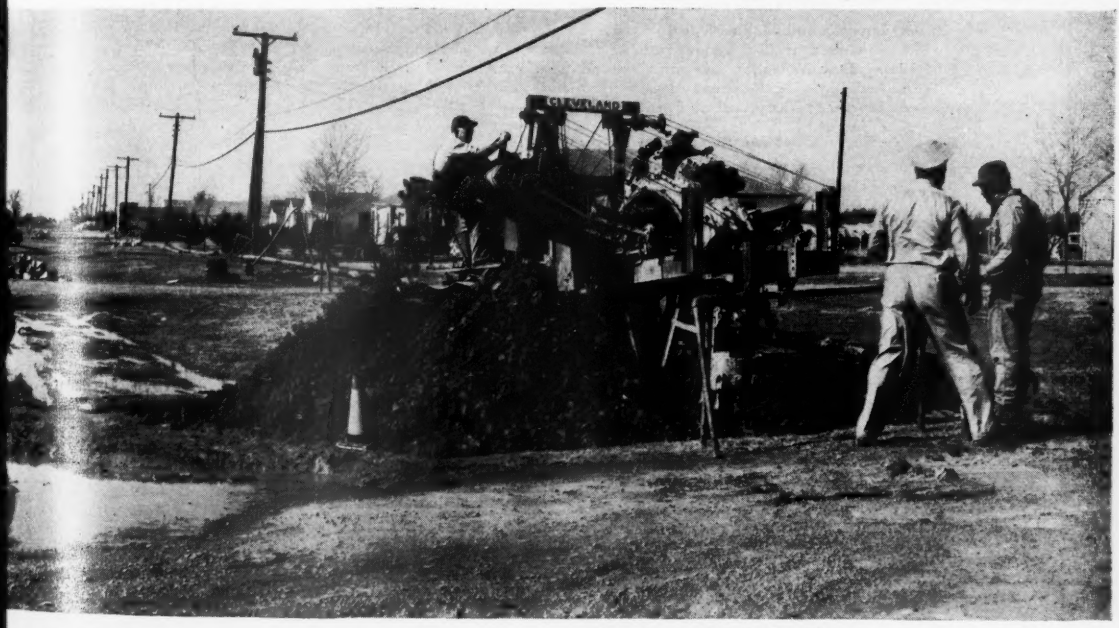
The Cleveland Model 140, shown at right and below on a Lone Star construction project, is digging 2,400 feet of trench for a 6-inch line and 2,000 feet for a 3-inch line in the vicinity of Second Avenue and Catalina, between Dallas and Rylie on U. S. Highway 175.



Cleveland 140 here is digging trench from which tunnel will be bored for a street crossing.



Full crawler mounting, low ground bearing pressure make Clevelands easy on lawns, walks, etc.



Complete operator visibility, easy working controls, help to cut trench exactly where it's wanted.

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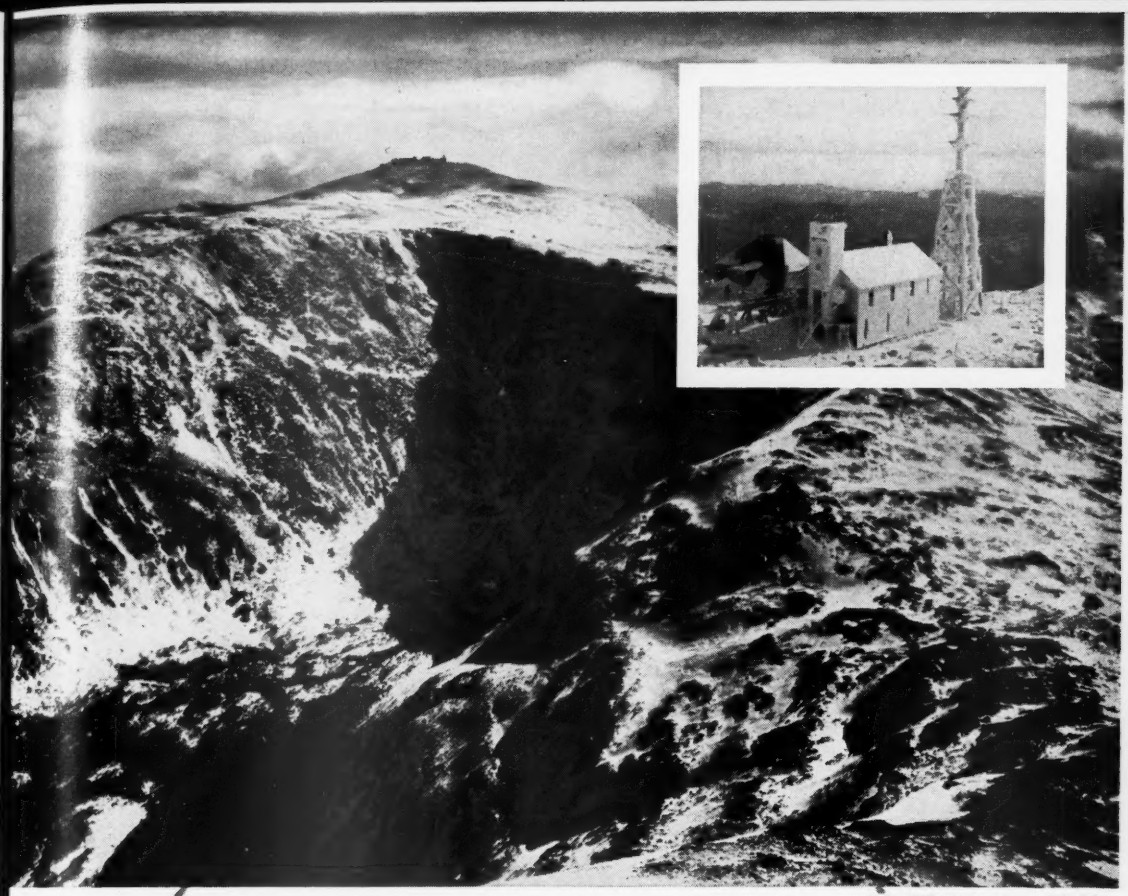

Mt. Washington, N. H.

IN 1870, sixteen years after the founding of the Kerite Company, a group of men headed by New Hampshire State Geologist, C. H. Hitchcock, established a permanent weather station on the isolated summit of New Hampshire's Mt. Washington. Needed for the regular transmittal of weather data between the outpost and the railroad station three miles below was a reliable communications line capable of withstanding the severe weather conditions of frost, snow, high winds and low temperatures. General A. B. Myer, Chief Signal Officer of the United States Army, conscious of the requirements, furnished Kerite insulated cable. This confidence expressed by General Myer and by responsible individuals in the many fields in which Kerite has been used through the years has been warranted by unexcelled performance records.

The value and service life of a product can be no greater than the integrity and craftsmanship of its maker.

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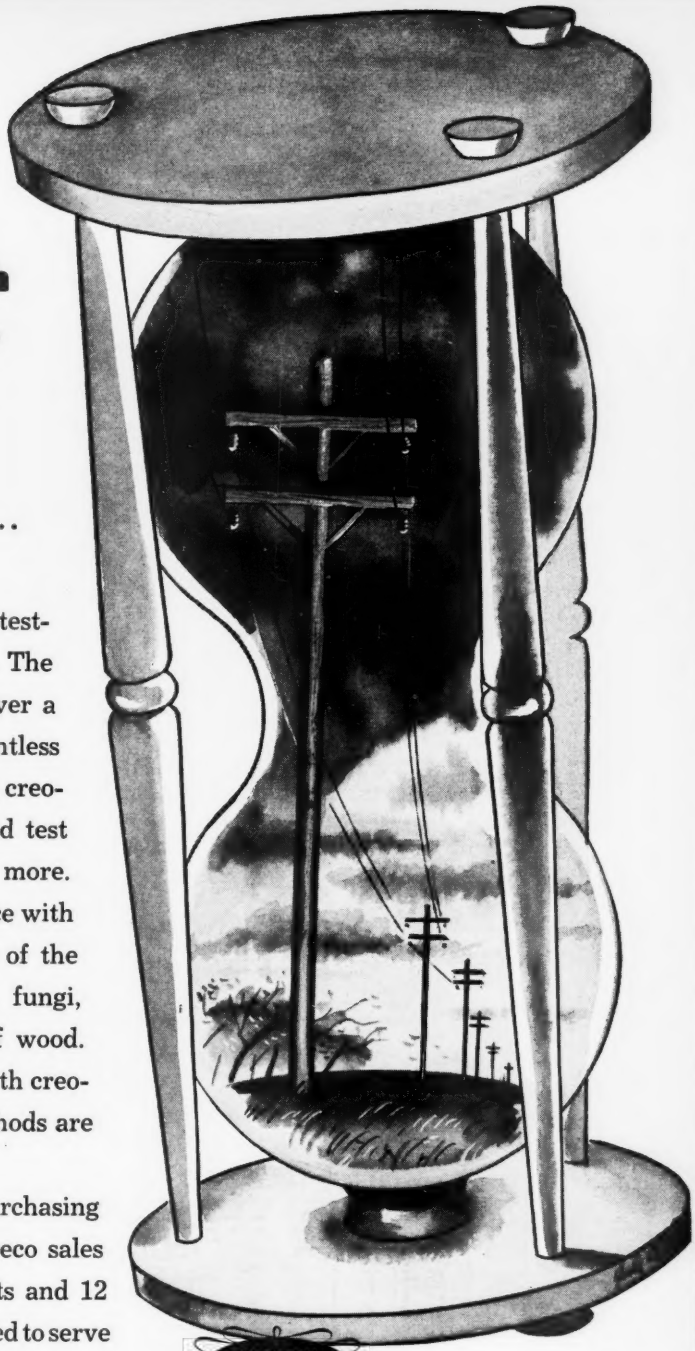

...and it takes a lot of years... there is no shortcut

There's no laboratory shortcut for testing the value of a wood preservative. The only sure test is how it stands up over a long period of time *on the job*. Countless Amcreco poles, pressure treated with creosote, have been undergoing this field test for 10, 20, 30, even 40 years and more. Their record is—long years of service with great strength throughout the life of the pole—high resistance to insects, fungi, borers and all natural enemies of wood. Also in the record, poles treated with creosote by experienced Amcreco methods are clean, dry and easy to handle.

Take the gamble out of pole purchasing by contacting your nearby Amcreco sales office on your next job. 23 plants and 12 sales offices are strategically located to serve your needs promptly, wherever you are.

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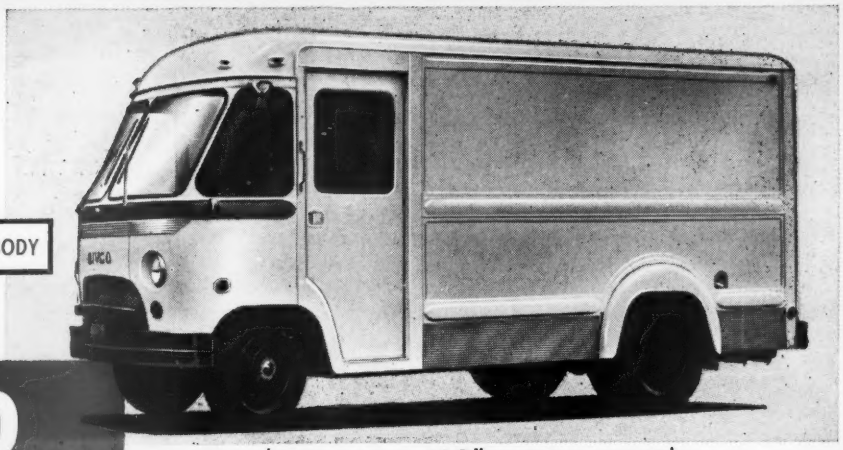

130"

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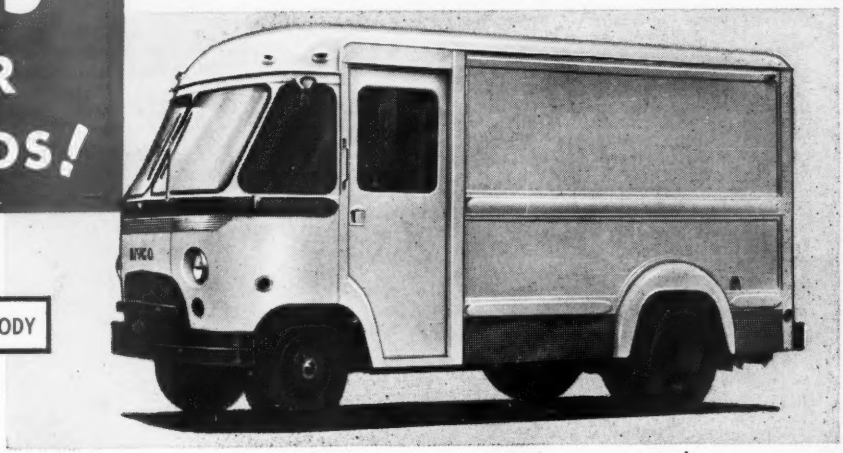

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470 cu. ft. Cargo Capacity	412 cu. ft. Cargo Capacity
7,000 GVW	7,000 GVW
10,000 GVW	10,000 GVW
12,000 GVW	12,000 GVW
14,000 GVW*	14,000 GVW*
130" Wheelbase	117" Wheelbase

*(Available factory insulated and refrigerated)

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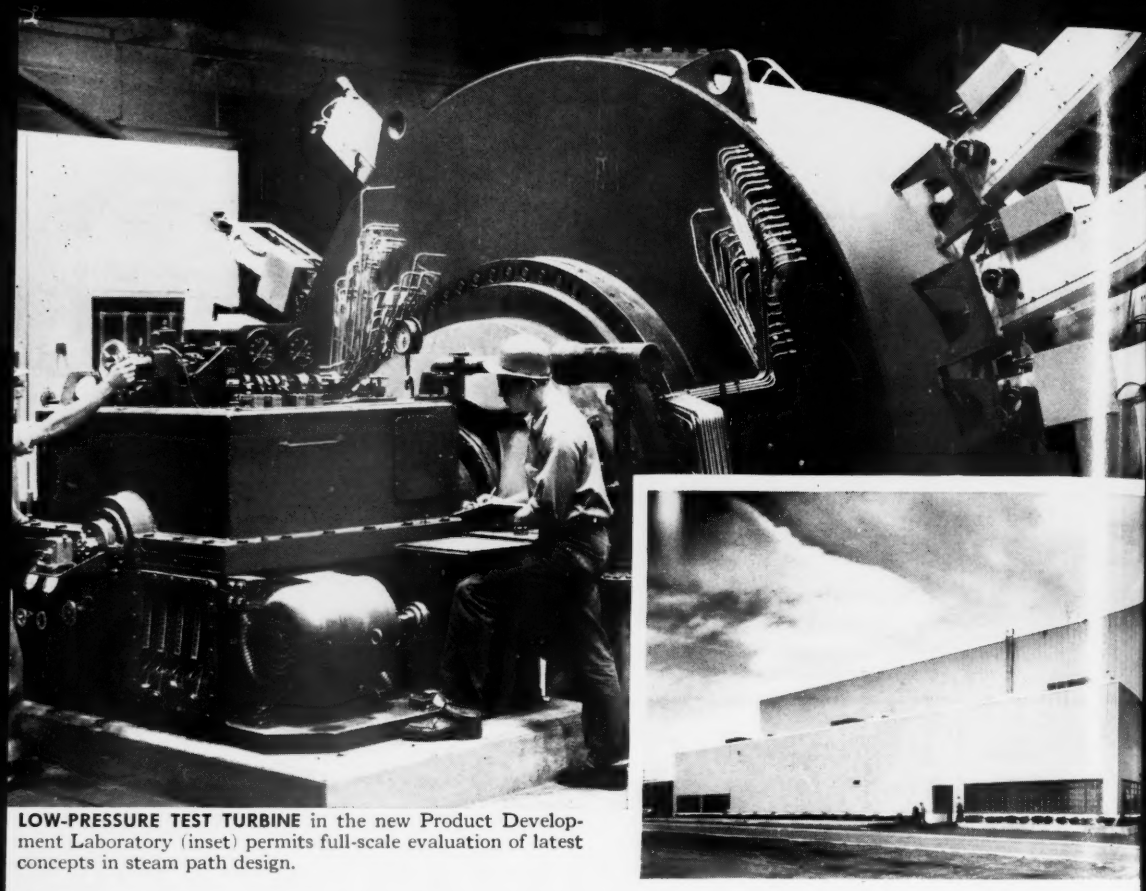

LOW-PRESSURE TEST TURBINE in the new Product Development Laboratory (inset) permits full-scale evaluation of latest concepts in steam path design.

New turbine lab facilities ready to tackle the problems of nuclear power generation

The generation of low-pressure, low-temperature steam by nuclear power reactors re-focuses attention on the low-pressure section of steam turbines and the increased importance of efficient use of the energy in this region. Present G-E low-pressure designs are basically suitable for application in nuclear power plants. Special problems, such as moisture removal to minimize later-stage erosion, need refinement.

The solution to such problems can be evaluated in the Turbine Development Laboratory's new full scale, low-pressure test turbine. The largest 3600-rpm steam parts built by General Electric can be run in this turbine under actual operating conditions.

Other special problems such as corrosion of the turbine parts and contamination by radioactive steam are being tackled in General Electric's other complete laboratory and testing facilities. These and many other G-E programs are keeping turbine development abreast of trends in reactor design.

From America's first commercial generation of electricity by nuclear energy (using a G-E turbine)* to working closely with various study groups, General Electric is helping to make atomic-electric power an economic reality in the shortest possible time. General Electric Company, Schenectady 5, N. Y.

*At West Milton, N. Y.,

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